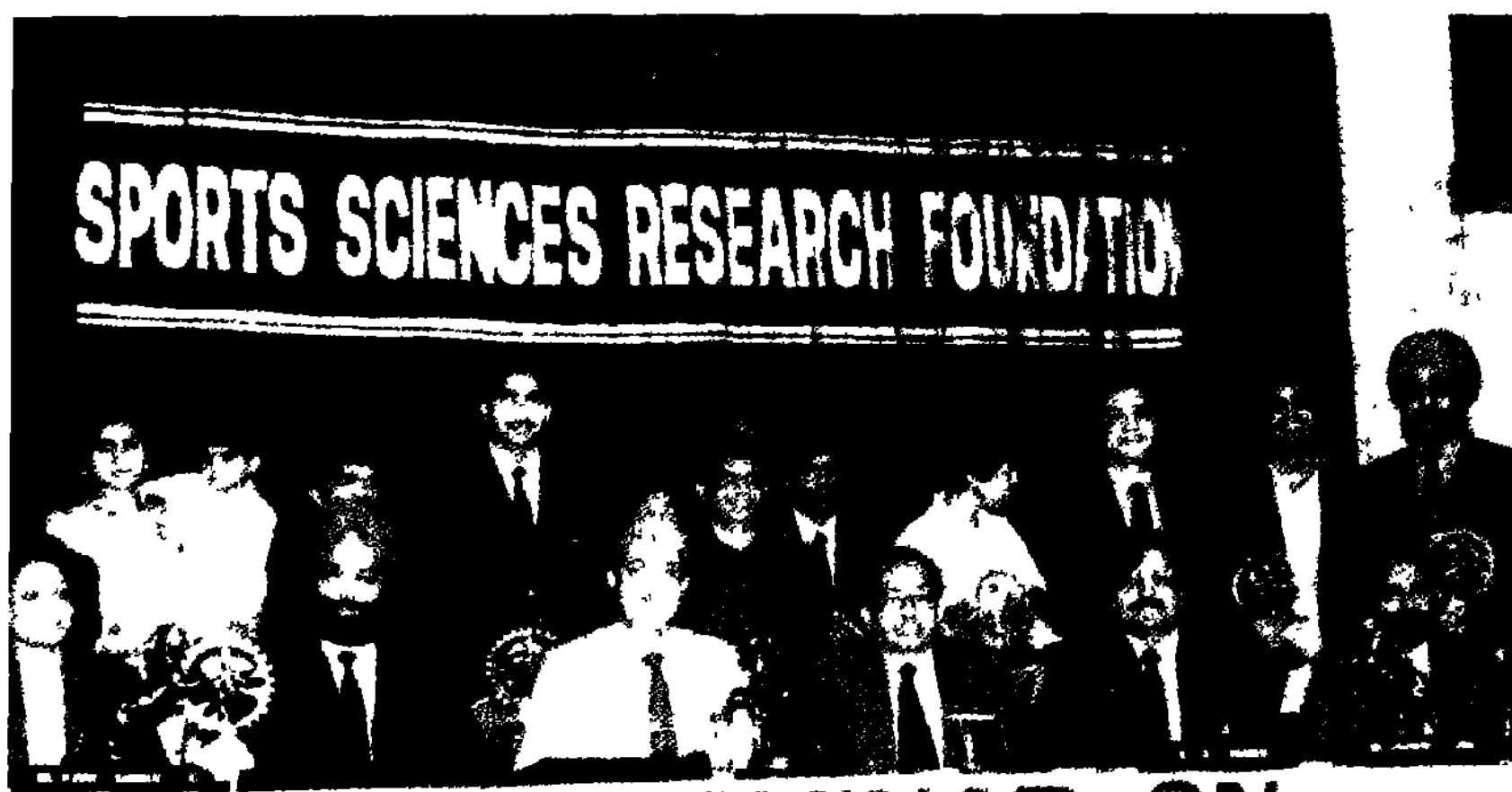


University News

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SEMINAR ON



Standing (L to R) : Manjeet Dua (Table Tennis), Shiny Wilson (Athletics), Pappu Yadav (Wrestling), Bahadur Prasad (Athletics), Dr. L.C. Gupta (Sports Medicine), Limba Ram (Archery), Sunita Godara (Marathon), Dr. Narottam Puri (Sports Broadcasting), Khajan Singh (Swimming) and Ajit Pal Singh (Hockey) were conferred awards for their distinguished services to the world of Sports at a function held in New Delhi recently. Sitting (L to R) : Dr. Kiran Sandhu, Secretary, Sports Sciences Research Foundation, Shri Randhir Singh, Secretary-General, IOA, Prof Mohd. Amin, former VC, Jamia Hamdard, Shri B. N. Bhagwat, Secretary, Deptt of Sports & Youth Affairs, Dr. Jawahar Jain, President of the Foundation and Mr. J. Braganza of Lyka Labs.

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IN THIS ISSUE

Higher Education : A Fundamental Right	1
Reforms in Higher Education	4
Autonomous Scheme : Myths and Realities	9
Rationalisation of Periodical Subscriptions	14
Convocation	
Bharathiar University, Coimbatore	18
Campus News	
Reorganising Undergraduate Courses	21
Higher Allocation for Education	21
Varsity Education in the New Eco Policy	21
Ambedkar Open Varsity Offers Doctoral Programmes	22
NCRA Graduate School	23
Admission to Biotechnology Courses	24
Agriculture	
National Symposium on Biotechnology	25
Sanitation Week	25
Sports News	
Sports Sciences and Sports Performance	26
Theses of the Month	28
Classified Advertisements	32

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Editor :
SUTINDER SINGH

HIGHER EDUCATION A FUNDAMENTAL RIGHT

J.N. Kapur*

The Supreme Court Judgement and its Implications

The judgement of Justices Kuldeep Singh and R.M. Sahai of the Supreme Court of India in the case of *Mohini Jain vs The State of Karnataka* is epoch making for the following reasons :

- It has dealt a severe blow to the evil practice of capitation fees in medical and engineering colleges in some States in India;
- It has re-established the principles of equality of opportunity and of admission on merit in institutions of higher learning ; and
- It has stated categorically that though Education is not a fundamental right, it is obligatory for the State to provide for education for all.

It is too early to say whether the judgement will be sufficient to completely eradicate the practice of capitation fees or it would simply drive the practice under the table. Even otherwise, the vested interests behind this practice are very powerful but it is obvious that the judgement will strengthen the hands of those who want to fight this evil.

This judgement may also influence, but not eliminate the practice of large 'Donations' in the case of admission to public schools and certain other courses in great demand in the universities. In the fight against all these evils, one battle has been won, but the war has still to go on.

This judgement will also discourage other colleges and universities from making unfair admissions without merit because the affected students may now go to courts to demand justice.

This judgement has also raised the question whether it is not time to amend the Constitution, if necessary, to give full powers of initial recognition to new medical colleges, to Medical Council of India (MCI) and whether the Council should also be given the power of disaccreditation of existing medical colleges and departments if they fail to fulfil the conditions laid down by MCI. Judgement will also encourage discussions whether similar powers should also be given to the All India Council of Technical Education or University Grants Commission or some other special agencies for engineering colleges and universities.

This judgement should also encourage discussion whether it is time to amend the Constitution to make Education a fundamental right.

Education as a Fundamental Right

The learned judges have argued that since the preamble to the Constitution talks of assuring dignity of every individual, its article 38 talks of a social order in which justice – social, economic and political – shall inform all the institutions of national life, article 39 talks of minimising inequalities of income and inequalities of status, article 41 of the right to work and since for all these education is essential, 'right to education', therefore, is concomitant to fundamental rights enshrined under Part III of the Constitution, though it may not be a fundamental right in itself. The Constitution

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also directs the State to make effective provision for securing the right to education within the limits of its economic capacity. All governments claim that they honour this right to education in letter and in spirit.

The question is not so much of making education a fundamental right, but of making "equal access to education as a fundamental right". Even this is implicitly there, since equality is a fundamental right and education is a right.

Free Education as a Fundamental Right

The Constitution has already provided for free and compulsory education till the age of 14 years. The goal was to be achieved by 1961. Unfortunately, the goal has not been achieved till today and even our latest plan is to provide education for all by 2000 A.D. But even there, we expect 20% dropout rate till class 5 and 40% dropout rate till class 8. What was expected to be achieved in 10 years by framers of the Constitution is not likely to be achieved even in 50 years.

It also appears that the framers of the Constitution also expected the economy to develop sufficiently to allow the state to provide for free education till the senior secondary stage in 20 or 30 years. This dream which has been realised in most countries today, may not be realised in our socialist state for another 30 or 40 years at the rate at which we are moving.

Education for all or Equality of Education for all

Suppose tomorrow all states and central governments decide to exempt the students upto class 12 from payment of tuition fees. This will mean some strain on our resources, but we may be able to bear this strain. However, will this bring us in level with the developed countries. The answer is a clear 'no' because it is not sufficient to provide education of any quality for all, we have to provide education of same quality. The 5th All India Education Survey conducted by National Council of Educational Research and Training (NCERT) has shown that 50.26% of primary schools in the country do not have pucca roofs over their heads and in fact in the states of Assam, Manipur, Mizoram, Meghalaya, Nagaland and Tripura, only less than 10% schools have pucca buildings. The survey also shows that only 47.3% of the primary schools have drinking water facilities, only 15.50% of primary schools have laboratories and only 40% of all schools have any libraries at all.

There are a large number of single teacher primary schools and there are quite a large number of schools which exist only on paper or in which no teaching is done

though teachers draw their salaries regularly. There are a large number of schools without libraries, black boards or chalks because while the government guarantees salaries of teachers, it does not guarantee even minimum infrastructural facilities.

The day that we can provide the same basic facilities in our schools as are provided in the other countries is far far away and if the population continues to grow at the present level, the day may never come.

Right to Higher Education

It is in this context that we have to assess the demand often made by university union leaders and politicians that it is the fundamental right of all students who pass the higher secondary examination (in whatever division) to get admission to colleges and universities and the government must admit every such eligible student irrespective of the facilities that exist or alternately the government must provide for funds for extra seats in colleges and universities.

Such a demand has not been accepted by almost any country in the world. Higher education is not regarded as a fundamental right or a birth right. It is a right to be earned by hard work. This is always restricted by the facilities available and the needs of the economy. No country agrees to provide sub-standard education or to produce larger number of graduates than can be absorbed by the economy. The right to higher education has also to be earned in another way by students paying for it in a significant way, either by earning before joining higher education or earning while receiving higher education or by taking bank loans. The percentage of expenditure on higher education borne by the students is much higher in other countries and the quality of education there is also much superior.

This does not mean that we should restrict admission to higher education. We have to increase number of students in our colleges and universities, but some essential conditions for it are :

- Improvement of school education so that schools produce more students who can benefit from higher education.
- Increase facilities in higher education to cope with larger numbers in higher education.
- Improvement in economy to be able to absorb a larger output by the universities.
- Provision of facilities for non-formal education.

This will also need increase in resources for both school and university education. These can come from :

- Government agreeing to increase its contribution to education to 6% of our Gross National Product (GNP) from the present 3%.
- Industries, the beneficiaries of education, agreeing to pay an education cess.
- Students agreeing to pay higher fees by agreeing to earn or take bank loans.
- Graduates benefiting from the educational system paying for the education of the next generation from the increased incomes they get.

Right to Admission, Right to Degree and Right to Education

These are not identical. Many students when they want the right to education, actually want the right to admission to colleges in order to be able to enjoy college life, since many of them are not anxious to attend lectures or study in libraries. They are prepared to work for two or three months near the examination as a necessary evil and they would even prefer to avoid that if possible. In fact most of them want the right to get degrees with minimum effort since these degrees are both status symbols and are essential for getting jobs. There are some who are interested in real education, in real learning and in the adventure of knowledge, but their number, under the present conditions, is small.

In fact nobody can deprive one of the right to educate oneself. If one receives real good school education, one should be able to learn a great deal through books, films, correspondence courses, etc. We may go even further and say that every citizen in a democratic country has the right to receive secondary education at the tax-payers' cost and has the duty to continue life-long education through his own earnings.

What is Merit?

The Supreme Court has upheld the right to get admission on the basis of merit which depends on marks obtained in qualifying examination. But under the present conditions of highly unequal facilities in school education, can we talk of marks as a true indicator or merit?

Do two students, both with 60% marks, have the same merit, if one has studied in a rural school with poor teaching, with no library and under no private tuition, and the other has studied in a public school or a Central

School with all facilities including a very helpful home background and the help of private tutors? School education almost tilts the balance in favour of children from richer and educated classes and so admission on the basis of marks does not, under the present conditions, provide equal opportunities for all.

Money power and status power will continue to increase inequalities in society, unless we can provide equally good school education for all students and force all students to study in schools with similar facilities.

If the Constitutional Directive of social, economic and political justice has to be achieved, it has to start with school education. All weak schools have to be upgraded before more funds are spent on poor quality higher education. We may even convert some poor quality colleges into good quality high schools for this purpose.

If we want social and economic justice and if we want to fulfil the Constitutional Directive of everybody living with dignity, we have to double the funds spent on education and spend all the increased funds for the next 5 years on improving school education only.

Education as a Right or as a Duty

In a democratic system citizens have not only right but they have also duties. It is the duty of every citizen and specially of adult citizens to get educated.

The Constitution had suggested free and compulsory education upto the age of 14 years. If it had suggested the same compulsory education for all illiterate persons of the country, the face of the country would have been changed. We would have got more literacy in 10 years and 100% literacy today because literate parents would have taught their own children and there would have been few dropouts, but while we could talk of compelling the children to go to school, we did not dare to talk of compelling the voters, who were our masters, to study.

If every citizen considers it his national and patriotic duty to continue learning throughout his life and if the state provides facilities for this purpose and the expenses are borne by the beneficiaries, we can have a learning society of our dreams.

We have been too conscious of our rights and too little of our duties. We have always asked what the nation can give us. Let us ask ourselves once in a while what we can give to the nation. Let us give at least educated citizens to the nation.

Reforms in Higher Education

The Case of Undergraduate Education

S.C. Bhatia*

Introduction

Reforms in higher education, especially in undergraduate education, have been guided by a concern for

- (i) improvement in the quality of education through a dual process of energising functioning of the system and its linkage with the development process in all its dimensions; and
- (ii) increasing access to opportunities for undergraduate education without having to expand the institutional infrastructure for formal education.

The adoption of the National Policy on Education (NPE) and its Programme of Action (1986) was followed up by the University Grants Commission through a series of initiatives :

- (i) Scheme of Autonomous Colleges,
- (ii) Introduction of Academic Calendar and Minimum Standards in Universities,
- (iii) Renewed emphasis on Restructuring of Undergraduate Courses,
- (iv) Scheme of Examination Reforms and Courses, and
- (v) Scheme of Academic Staff Colleges.

The policy planners had stated their motivation for the envisaged reforms, rather explicitly. They had felt that

- The courses offered by the universities needed to be reorganised to have greater relevance and utility; and
- The eroded credibility of the evaluation system needed to be repaired and revitalized.

The policy planners had felt that the system needed to be made "dynamic" and that it could so become by these steps

A Look Back

Now that one plan period has passed, the time is opportune to assess the trends that are discernible in

regard to the envisaged changes. Were these changes conceived properly by the managers in the system of higher education both at the apex level (the Department of Education in the Ministry of Human Resource Development and in the State Ministries of Education and the University Grants Commission) and in the institutions of higher education? Have these envisaged changes had the desired effect?

The Question of Priorities

The number of universities and colleges in the country have been rapidly increasing despite policy concern at lack of "minimum level of infrastructure for the maintenance of quality and standards" in these institutions. The NPE Programme of Action had recommended steps "to ensure that no new institutions are established without careful planning and the provision of the necessary physical facilities" and, "to prepare a plan to equip the existing institutions in a phased manner on the basis of norms prescribed."

At the time of approval of the NPE and its Programme of Action, the country had 150 universities and 5000 colleges. By the end of the Seventh Five Year Plan, the UGC reported 180 universities and 7200 colleges. Enrolment in the institutions of higher education has risen from 34 lakhs to 42 lakhs. The substantial growth of enrolment in higher education is at the undergraduate stage; it has risen from 29 lakhs to 37 lakhs.

The undergraduate enrolment registered substantial expansion in the sixties; the decade was in fact, known as the decade of the college boom. The seventies did demonstrate lowering down of the percentage growth in undergraduate enrolment; it still continues to be around 4.7 percent each year. The growth rate in undergraduate education was around 14 percent in the sixties, it fell to 3.2 percent in the seventies.

There has been substantial increase both in the number of institutions and in enrolment. The apex bodies could probably argue that, within the framework of their eligibility requirements as specified in the 2(F) list, many of these institutions are not considered as viable colleges. Such institutions do not receive any assistance from the apex bodies. Yet, these cannot be wished away since these are imparting collegiate education and their certification is recognised by their respective universities.

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The expansion of enrolment in undergraduate education has been accompanied by the setting up of colleges which are generally lacking in minimum infrastructure. Such colleges offer courses which prepare the youth for the already narrowing down market of white-collared jobs. One document describes this situation in the following words.

"...It is the home of the discarded hopes and nameless fears which provide ready fuel for the occasional conflagrations of social upheaval. It is at this level and in this segment of the spectrum that the mismatch between education and employment is at its highest and the phenomenon of educated unemployment poses the most serious problems for policy-makers and planners. It is this sector of higher education which largely performs the waiting room function not only for a relatively smaller number of the employable unemployed but for a considerably larger horde of the unemployable unemployed.¹ (p.57).

The policy responses to this phenomenon have so far been both elitist and "negative" in nature : do not establish any new institutions without necessary physical facilities. The ground realities have not accepted the policy since regional inequities continue to generate local demand for higher education for want of any meaningful initiatives at the secondary and senior secondary stages of school education.

The document cited earlier points out that while in Chandigarh, "enrolment per lakh of population crosses the 5,000 mark; it does not even reach three digits in the outer hills of Jammu & Kashmir; or that while the women's share in enrolment is more than half in Southern Kerala, it barely touches the 8 percent mark in western plains of Assam. Regional disparities in higher education are entrenched in the basal strata of the spatial structure of inherited underdevelopment; its colours are etched in the bedrock of inter-regional inequity."² (p.65).

The trickle-down effect of development planning in India continues to support and spurt demand for higher education both in cities and towns. More and more colleges are being opened by social entrepreneurs despite an elitist and negative policy framework. There is need to examine the possibility of a change in this policy framework by laying exclusive emphasis on the state's commitment to provide resources for minimum infrastructure to all institutions, irrespective of their eligibility under section 2(F). The institutions must be left to themselves to raise resources for their development and quality-oriented performance. Market forces would generate sufficient pressure for innovative institutional behaviours.

The current practice of excluding nearly 55 percent of the colleges from eligibility for assistance and overdose of support for well-resourced institutions in urban areas tends to run counter to the specified constitutional goals and the strengthening of democratic behaviours in the country. It is no use being apologetic or evasive by

saying that biases in education policy are part of the biases in national development policies. The very "excluding" or "elitist" nature of our policies tends to undermine faith in the bonafides of centres of political power.

It is unfortunate that the pursuit of such an elitist policy in higher education has also led to the commitment of a larger share of development resources to equally elitist concepts in the area of "reforms" in higher education. One of these is known as Autonomous Colleges.

Autonomous Colleges

The strategy of autonomous colleges has been visualized in the National Policy in Education-1986 as an intermediate step towards a stage wherein the "affiliating system is replaced by a freer and more creative association of universities with colleges". It further stated that "autonomy and freedom will be accompanied by accountability." Under the scheme, the college has to "earn autonomous status continuously and not once for all".

The National Policy on Education-1986 recognised the ineffectiveness of centralised academic and administrative control of institutions of higher education. It advocated functional and academic autonomy of educational institution, opportunities for experimentation and innovation by the teachers and leadership role for the heads of institutions. By this strategy of reform, the National Policy visualized for the teachers a key role as change agents promising in the process measures aimed at avenues for professional growth and enhancement in status.

In activity terms, autonomous colleges are required to initiate action in the following areas :

- (i) innovation and changes in curriculum, teaching methodologies and system of examination,
- (ii) energising co-curricular activities, sports, and other measures aimed at encouraging student participation,
- (iii) formulation of research programmes,
- (iv) collaborative arrangements developed with other institutions, and
- (v) participation by students and teachers in various extension programmes both in the college and in the community.

It is interesting to note that the University Grants Commission views "autonomy" not as "a reward for the good performance in the past but rather a means to achieve higher standards and greater creativity", with the college going through a preparatory phase "to take over the role of an autonomous institution". The scheme grants to teachers of the college "absolute freedom to determine courses of study and syllabi, prescribe rules for admission subject to reservation policy of the

government and, evolve methods of evaluation and conduct of examinations".

The UGC had hoped to grant autonomy to 500 colleges in the seventh five year plan. So far 110 colleges have chosen to accept autonomous status. The states of Tamil Nadu, Andhra Pradesh and Madhya Pradesh account for 90 such colleges. The teachers' organisations have opposed the concept on account of a fear that it would lead to increase in workload without adequate compensations and that it would make college managements more authoritarian. Most state governments realize the political implications of the teachers' viewpoint, they have preferred to remain reluctant to implement the scheme. West Bengal and Kerala have refused. Haryana has cited financial constraints. In Maharashtra, Karnataka, Nagaland, Assam, Manipur and Delhi, the Acts of universities have not been amended to provide for autonomy to colleges.

Students have built sufficient pressure against the practice of internal assessment partly on account of the leakages in the evaluation system and partly on account of hardships experienced in admission to higher courses including courses in the same university.

The additional incentives offered to the colleges seeking autonomy have given rise to more problems within the institutions than any obvious gains in their performance levels. Changes in curriculum teaching methodologies and system of examination in any given knowledge area were a function of the parent department or faculty in the university. This enabled to bring entire teaching community in the subject together to deliberate on issues of significance to the teaching-learning process. Assuming that the subject department or the faculty were sluggish in handling their responsibility as academic leaders, the UGC chose to vest the same responsibility in a relatively smaller group of subject teachers in the college. It does represent one kind of understanding of the principle "small is beautiful".

The function of energising the co-curricular activity base should, in fact, be thought for all colleges, rather than the autonomous colleges alone. The continuing pressures of increasing enrolment in metropolitan colleges forced college managers to enforce a "shift system" and consequent diversion of resources to expansion of classroom space rather than an integrated development of curricular and co-curricular activities. The pressure of competitive sports discouraged the colleges from supporting a policy of Sports for All. It is not altogether surprising to see college teachers remembering faces rather than names, of their students; in some cases, college Principals found it difficult to distinguish teachers from students. In fact, colleges in small towns and rural areas have created a much wider base of co-curricular activities than the colleges in metropolitan cities. An average student tends to spend much more time per day in rural and small town colleges than colleges in metropolitan cities.

The UGC scheme of Assistance to Autonomous Colleges had stipulated that colleges seeking autonomy would take steps to encourage participation by teachers and students in various extension programmes both in the college and in the community. Surprisingly enough, the UGC had recommended the same for all colleges in its recognition of Extension as the third function of institutions of higher education. It had kept the non-viable colleges out of extension activities for assistance and support. By the end of the Sixth Five Year Plan, it had provided assistance and support to more than 2500 colleges under its Adult and Continuing Education Programme and to more than 1300 colleges under its Population Education Programme. It had, in fact, chosen to recognize Population Education as a co-curricular activity to be planned through a Population Education Club.

It is curious that around the time the UGC began to confer the autonomous status on colleges, it also started reducing support to various extension programmes at the colleges. The Adult and Continuing Education Programme had come to a virtual halt in the colleges by the end of the Seventh Five Year Plan. The UGC's capacity to carry its own mandate of support to extension programmes had shrunk from the envisaged level of Rs. 65 crores to a actual utilization level of Rs. 17 crores in the Seventh Five Year Plan. The main cause for this "capacity shrinkage" was not resource scarcity, but intensifying winds of elitism at the policy planning level and the rapidly fossilizing capacities at the managerial level.

It is an irony of fate that apex institutions which lacked a social face were given the mandate of supporting and overseeing growth in college-community interaction. Elitism in higher education planning receives support not only from those who nurture their own caste and class but by those as well whom they hire for carrying out social justice programmes. Someone should undertake an analysis of professional qualifications and management skills of those personnel who are hired to look after special programmes for extension, for scheduled castes/scheduled tribes, and, for other social justice programmes. The results of such an analysis would be revealing indeed.

The scheme of autonomous colleges represents, in one sense, the search for excellence in higher education. It also legitimizes the growing neglect or responsibility at the university level (faculty or department) to knowledge reforms on the one hand and to the professional growth of teaching community on the other. The chances of any enthusiastic response to the scheme granting autonomy to the colleges continue to be bleak.

Restructuring Undergraduate Courses

The earlier scheme of the University Grants Commission envisaged a restructuring of the first degree programme in a three-year format envisaging founda-

tion-courses, core courses and applied courses. However, in the context of the scheme of autonomous colleges, emphasis seems to have shifted from the structural aspects to the nature of courses. The scheme of autonomous colleges envisages social and academic goals for the curriculum. The social goals bring the college in curricular terms in proximity with the community, industry and institutions and in access terms closer to the local student population. The academic goals centre essentially around development of analytical abilities and acquisition of skills.

The 1987-88 Annual Report of the Ministry of Human Resource Development stated that 31 universities had introduced these courses in 117 colleges. In addition, the UGC had set up 24 curriculum Development Centres with a view to reviewing existing curricula, modernising curricula, and developing and preparing new teaching and reading materials. While the number of universities which have accepted the scheme appears to be fairly reasonable, the number of colleges participating in the scheme is very disappointing. It would not be altogether unfair to assume that many of these colleges have abandoned the scheme in view of gross managerial deficiencies in the advocacy of the scheme. Some of these deficiencies are being suggested below :

The traditional organisation of universities is woven round structures known as departments and faculties. It would be difficult to solve jurisdiction problems both with regard to foundation courses and applied courses since no single given faculty or department would have exclusive knowledge or skills within its jurisdiction. Some universities have chosen to overcome this structural constraint by letting the Academic Council legislate for foundation courses or applied courses. Some universities have chosen to operate through *ad hoc* committees created for the purpose. Others have chosen to accept the scheme of restructuring of undergraduate courses in part; applied courses, in such cases, have been incorporated in the traditional three-year degree programme without attention to the larger socio-cultural goals of the scheme.

In addition to an utter lack of managerial sensitivity to the traditional structures for organisation of knowledge in universities and colleges, the UGC have unfortunately failed to see any "affinity of purpose" in their schemes relating to Restructuring of Undergraduate Courses, Continuing Education Programmes, and, Academic Staff Colleges. These have been offered as discrete concept without any structural integration in the institution. This point needs to be elaborated.

In case the undergraduate curriculum is expected to facilitate achievement of academic and social goals, these courses need to be formulated on the basis of felt and perceived educational needs of a given area and its society. A feedback on the felt and perceived needs of society could be obtained both from the planners of Continuing Education Programmes and the Curriculum Development Cells. Such a feedback on the felt and perceived educational needs of a given area and its society could be placed for discussion among teachers

participating in the orientation and training programmes organised by the Academic Staff Colleges in the belief that teachers must plan, teach and evaluate the courses. A structural integration of these units/centres/departments in a given university would thus make it possible to develop a Course Bank alongwith a standing mechanism for the regular monitoring of the progress made in the introduction and management of new courses. Some universities have even felt the need of making the Audio-Visual Research Centre a part of this structurally integrated mechanism within the university. This could be labelled as the Faculty of Educational Planning with constituent units in the form of Department of Continuing Education & Extension, Curriculum Development Cell, Audio-Visual Research Centre, and, the Academic Staff College. Such a faculty should be committed to educational restructuring and innovation both at undergraduate and postgraduate stages.

Management Poverty at Higher Levels

The current practice of the University Grants Commission to offer these innovations as discrete activities has led to a situation wherein these sub-structures have been received in an *ad hoc* manner. These sub-structures work in isolation without establishing any "affinity of purpose" amongst themselves. Each sub-structure had identified its own targets in terms of courses and activities, often in contexts where their own continuity is uncertain.

The Academic Staff Colleges were made to seek justification for their existence in the obligation that teachers seem to have incurred either by virtue of their new pay scales or fresh appointments. The dominant concern is not with the continuing updating of teachers' knowledge and skills in a given knowledge area, but with certification requirements which support upward mobility of teachers or crossing the EB (Efficiency Bar) in the pay scales. It is not altogether surprising that many Academic Staff Colleges in the country have found it difficult to receive acceptance for participation from teachers for the Orientation/Refresher Courses. The UGC chose to keep some on a yearly existence in the last three years; newspaper reports had even spoken of the UGC's intention to close down Academic Staff Colleges. Some attempts are also underway to offer orientation/refresher courses through distance education.

In the absence of any meaningful integration of structures envisaged to engineer reforms in undergraduate education on the one hand and on elitist bias to support few "islands of excellence" in the form of colleges in metropolitan cities, undergraduate education is likely to remain a victim of official apathy both in terms of policy planning and actual implementation. The current emphasis on overcentralization tends to distract attention from the minimum infrastructural needs of a large mass of colleges in the country. The plea for quality education appears to be a poor excuse for deliberate neglect of the large majority of colleges located in small towns and rural areas. The policy planners are probably wait-

ing for organised pressure groups from among students and teachers from these areas.

Innovative Experiments in the field

While managerial poverty continues to be in plenty in higher education both at the levels of UGC and the universities, colleges in small towns and rural areas have undertaken innovative roles in restructuring undergraduate courses and in responding to the development needs of weaker sections in their areas.

Many colleges in the Maharashtra sugar belt have set up 'client-service provide' relationship with sugar mills by providing computer time for maintenance of salary rolls, employees' work attendance records, Provident Fund Accounts. Some other colleges have successfully sought and implemented development projects sponsored by development departments/agencies both in state and central governments. There are colleges which have been able to provide sponsored employment to their students based on knowledge and skills resources available with the institutions on the one hand and through their meaningful interaction with industry and trade in the city on the other.

The UGC should, for a change, sponsor documentation for these innovative efforts within the country rather than be content with sponsoring delegations for the study of community colleges in the United States of America.

Similarly, many colleges have experimented with innovative behaviours both in co-curricular activities and extension activities. One such example should suffice to draw some meaningful inference concerning the nature of responses at the policy planning level.

A meeting of the National Steering Committee on Population Education Programme in India was in the process of hearing reports on work done by college students and teachers in small towns and rural areas. These colleges had organised camps for health check up of rural population, immunization camps for children, awareness for control of diarrhoea, early identification and prevention of disability, and camps for use of terminal and non-terminal methods of family planning. Apart from equipping themselves to better parenthood, these young people had become active participants in the pursuit of national development goals.

The narration had an instant effect on all those present in the meeting, particularly on the officials in the much-maligned Ministry. There was an equally instant recognition and reward. The presiding "deity" proposed that inter-country study tours on an exchange basis with funding from the international agency concerned be made part of the work plan. The intra-country or even intra-state study tours for the college youth would probably have been too poor an incentive!

Curiously enough, right when this proposal was being discussed the University Grants Commission was going through a phase of three-year managerial slumber in the matter of sanctioning funds for Population Education Clubs!

Conclusion

"Elite" groups among educational planners have so far managed to have their way by scoffing at the "populist" pressure for expansion of higher education "as evidenced in the setting up of large number of colleges." Priorities in educational planning have thus been seen in resourcing the already well-resourced colleges through offers of autonomy and other allurements. They have thus committed the democratic state to being a party to support what they consider as "few islands of excellence" while the large majority of institutions continue to starve on account of deliberate neglect. An average lecturer in a small college is forced to cook elsewhere instead of feeling a sense of pride in and commitment to the growth of his/her institution.

The central government had consistently been over generous in allocating funds and other favours to central universities and colleges in large metropolitan towns. The state governments have not altogether been different in this regard. The small town and rural college has had to perforce relate and respond to the local socio-cultural and economic milieu, such colleges have established a more meaningful interaction with the local development scene than their counterparts in metropolitan cities.

The need in higher education should, in fact, be seen in greater democratization of policy and management of behaviours as reflected in resource provision for every institution to enable towards attainment of minimum infrastructure. The need is equally critical in the area of encouraging meaningful structural integration of departments/centres/units available in the universities aimed at more intensive support to undergraduate education. The current tendency to isolate universities from their colleges would only encourage a weak entry base for postgraduate education and research on the one hand and growing irrelevance of higher education from the demands of socio-economic development of the region on the other.

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Autonomous Scheme : Myths and Realities

K. Sudha Rao*
George Mathew**

Prologue

The scheme of providing autonomous status to the affiliated colleges in this country has remained more an issue of debate than implementation at the college level, in spite of the fact that the scheme was initiated as early as in 1970s on a selective basis. The scheme was implemented on a larger scale in mid eighties as an outcome of New Education Policy – 1986. Though more than 7500 colleges are functioning under the affiliating system with 148 universities, only 107 colleges are autonomous in seven states. State wise break up of the colleges is : Tamil Nadu – 44, Madhya Pradesh – 29, Andhra Pradesh – 20, Rajasthan – 5, Orissa – 5, Gujarat – 2 and Uttar Pradesh – 2. Though the data reveals that seven states are implementing autonomous scheme, it is only four viz Tamil Nadu, Andhra Pradesh, Orissa and Rajasthan that have implemented the scheme in real sense of the term. In Madhya Pradesh, it is only on paper while the rest of them are in no way near it.

The hesitation to opt for autonomy and its implementation in colleges is attributed to a variety of reasons : The most significant, amongst others, is the very social attitude towards development. Paucity of resources has made educational experts abstain from developing indigenous models through research. This had led the developing countries to adopt and adapt the theories and models that are tested for developed countries. This process has generated both positive and negative experiences. It is those negative experiences that have left bitter feelings and hence stronger impact on the minds of the people. Resultant outcome is resistance to accept any new programme or policy that is already tried in developed countries. It could be either due to ignorance or just the feeling of "play safe". Even academic faculty maintains apprehensions and reservations on similar lines. One such strong apprehension

about autonomous scheme is that, it is a western concept and hence might not suit the Indian conditions. But this assumption is far from reality.

Teaching, learning and evaluation are the trinity of academic functions which is to be carried out by the institutions through the teachers and students, no matter which country it is. This philosophy is universally accepted and the *Acharyas* or *Gurus* of ancient India practised this. In *Guru Ashram* System of Education of ancient times, the '*Guru*' designed the curriculum to be taught depending on the students' needs : both cognitive and affective, and adopted suitable methodologies of teaching and evaluation as well. Anybody who is exposed to the scriptures cannot question the quality of education that was imparted as also the behavioural input that had gone into this process. Philosophy of autonomy actually envisages this concept of freedom, mainly of academic functions. It emphasises the need for greater freedom to teachers to enhance students learning. No doubt it is a challenge to the teacher to be at his best, and to give his very best.

The Purpose

The present article is an illustration of "state of art" of apprehensions about autonomous scheme in India. The article is developed on the basis of authentic data collected from teachers working in autonomous and non-autonomous colleges, field observations and interviews held with implementers and beneficiaries of the system. The purpose of the paper is three fold :

- highlight the findings on teachers' apprehensions in government and private colleges about the autonomous scheme in India;
- understand reasons for such apprehensions in the context of their institutions; and finally
- disseminate the knowledge and findings to facilitate better understanding of autonomous scheme.

It is believed that such a presentation would not only help in understanding the concept of autonomy and the scheme but also assist colleges in having an open mind towards exploring the possibility of implementing autonomy in their respective colleges.

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The Facts

One of the striking findings of the study which was surprising to note from the teachers, students and principals of the colleges was that much of the resistance emerged from sheer ignorance and lack of awareness of

- the very concept of autonomy and the proposed autonomous scheme of UGC; (For details on concept, See Sudha Rao 1990)¹;
- pros and cons of the scheme and its influence on the college and the quality of teaching-learning on the one hand and teachers, students and administrators on the other; and
- demerits of the affiliating system and its impact on the students and in turn society.

India is one of the very few countries of the world where the major part of the higher education is imparted through its affiliated colleges. Though the system of affiliation was copied from London University in 1850s, it was discarded by them long ago. But we still follow the outdated system, and today it has been proved that it has not been able to serve the needs of the society and is also responsible for the state of art of general arts and science courses in the colleges. Our Constitution adopted in 1950 has been changed more than seventy times in the last four decades to suit the changing needs, the monuments constructed in 19th century have undergone physical changes due to the passing of time, if anything remains in the original form in this country, without any change, for about 140 years, it is our affiliating system of colleges.

The affiliated colleges compete with each other for marks and divisions in the university examinations and have concentrated more on the examinations rather than on the achievement of real goals and objectives of higher education. The Academic Council, Board of Studies, Syndicate and Senate which are the major academic bodies of the universities, meet occasionally, discuss the non academic issues as they form the crisis agenda more often than the academic matters. As a result, the universities on an average take around four to eight years to make changes in the syllabus (if at all it is initiated). Postponement of examinations, mass copying and other malpractices have become common practices in the colleges. The conduct of examination has become a major law and order issue in good number of states. Some of the states had to enact laws to make malpractices in examinations as a non-bailable offence, and also at times, it has become unavoidable for the college authorities to seek the help of law enforcing machinery for the fair conduct of examinations. In the affiliating system, syllabus, curriculum (good number of courses have already become obsolete, students rush to enrolment is another indicator of the course quality),

examinations viz. setting of question papers, printing, secrecy maintenance, distribution of question paper to colleges, announcement of examination dates, actual conduction of examination, evaluation of answer sheets, declaration of results, retotalling and re-evaluation, certification and awarding of degrees all these activities are the responsibilities of universities. The teachers who participate as paper setters, invigilators and evaluators of answer sheets get remuneration for these tasks (of course at times get threatened from students as well), are some of the main features of affiliating system. No doubt it also provides equal protection irrespective of different levels of performance of the teachers.

As we know, there are universities having more than 200 colleges affiliated to it. Some of them are at such distances that much of the administrative delays are unavoidable due to physical distance itself. Anything can happen while reaching the question papers and transporting the answer sheets at the time of examination. Incidents of errors in evaluation of large number of answer scripts by teachers, such as over and under estimations, carelessness are reported time and again. Lack of preparation for examination on the part of the university can affect students future. There are incidents of students losing 2 to 3 years due to delays in conduct of examinations. This situation prevents even those colleges with better resources and determinations from improving the quality and achieving their objectives. This makes affiliating system a status-quo and stagnating one, and thus society has started raising questions against the very purpose of higher education itself. Moreover, affiliating system has made the colleges mere implementers of the decisions taken by the university without participating in the decision making process.

Well, if these are the negative tones to affiliation, there are positive (if it is viewed as such) ones as well. Colleges get recognised in the name of the university. Responsibilities remain with the university for all the decisions, except teaching in the classes and hence the faculty remains in the shadow of the university. But the risk lies in the image. Individual faculty or college, irrespective of their performance (good or bad) will be identified by the image of the university.

The Realities

The history of higher education in modern India starts with the history of autonomy. The colleges were established in the British provinces before the establishment of Universities of Calcutta, Bombay and Madras in 1857. The Hindu College was founded in 1816, Poona College in 1821, Agra College in 1827, Elphinstone College in Bombay in 1827, Hoogly College in 1836, Benthune College for women in Calcutta in 1849 and Madras College in 1852.² These Colleges designed their own rules for admission of students,

prescribed courses, conducted the examinations and declared the results. These institutions were later affiliated to the three universities in 1857, and some of the functions performed by the colleges were taken over by the universities and it is these universities that were declared autonomous later.

Autonomy to colleges is suggested as an alternative model to the age old practice of affiliating system. The importance of introducing the autonomous scheme has been emphasised by several commissions and committees: Kolhari Commission (1964-66),³ UGC Committee (1966-67),⁴ Gajendragadkar Committee (1969-71),⁵ Central Advisory Board of Education (1977),⁶ and Jaikrishana Committee of (1974),⁷ are the few amongst many.

The affiliating system gives no specific identity to a college while autonomy is based on the individual identity and recognition to the college. Autonomy emphasises the principle of "smaller the unit, better the management and in turn better the quality". Underlying the whole concept is the principle of decentralisation for effective implementation. Under autonomy the college takes decision through committees constituted by the college itself for the purposes of achieving the specified goals and gets it implemented too.

The Attempt

A quick survey was conducted on teachers working in autonomous colleges in three states viz. Tamil Nadu, Andhra Pradesh and Rajasthan. Questionnaires were administered to 443 teachers to know their awareness, apprehensions and understanding of the autonomous scheme. The data revealed the following.

Table indicating the statewise sample of teachers and the percentage aware of autonomous scheme.

Table 1 – Teachers' Awareness of Autonomous Scheme

State	Number of Teachers (Total Sample)	Percentage of Teachers		
		%age	Aware of aims and objectives	Not aware of aims and objectives
Andhra Pradesh	105	23.76	82.91	17.09
Tamil Nadu	254	57.47	98.77	1.23
Rajasthan	84	18.77	58.07	41.93
Total	443	100.00		

The figures indicate that even amongst those teachers who have been working under the scheme for more than four years, are also some teachers who are not sure of the aims and objectives of autonomous scheme. It became obvious with the teachers response

to one of the queries - "Are you clear with the aims & objectives"? We can notice that 82.91 percent from Andhra Pradesh, 98.77 percent from Tamil Nadu and 58.07 percent from Rajasthan are aware of the aims and objectives. In other words, 17.09 percent teachers from Andhra Pradesh, 1.23 percent from Tamil Nadu and 41.93 percent from Rajasthan, who are working in autonomous colleges, are not clear about the aims and objectives of autonomy. This finding supports the assumption stated earlier that the resistance for the autonomous scheme originates from the teachers' apprehensions, and that too, not based on the proper understanding and analysis of the scheme.

The responses to the query on different aspects revealed that teachers hold different opinions and perceptions towards autonomy and these responses attain greater significance when their background is also taken into consideration. These teachers are those who have worked under the affiliating system, for several years before entering into autonomous system and are now working in autonomous system for quite some time.

It is obvious from the findings that autonomy has been able to promote introduction of changes, more so, in the area of restructuring of curriculum. Teachers are given both power and freedom to restructure the courses because it is known that autonomous system cannot function without involving teachers in college administration and decision making. With these it is expected that it promotes accountability as well. Restructuring of courses necessitates introduction of changes in teaching methods and evaluation. Internal assessment, project work, semester system, etc. are some of the methods tried in these autonomous colleges. Through project work students have been able to use their talent and energies for creative activities. Semester system is expected to introduce discipline in students and keep them busy with the academic matters and thus promote quality. All these would obviously encourage better interaction between the teachers and students. Table below reveals the actual responses of the teachers on various issues :

Table 2 – Teachers' Perception of Advantages of the Autonomous Scheme

Statement	A.P. (%)	T.N. (%)	Rajas- than (%)	Total (%)
1. Autonomy promotes Accountability	69.02	77.08	62.87	72.5
2. Autonomy promotes more freedom in developing new methods of teaching	79.97	88.04	60.20	80.9

3. Autonomy promotes recognition of teachers and college	74.07	78.82	58.07	73.8
4. Autonomy promotes better interaction of teachers and students	75.76	84.57	54.34	76.8

Responses are in percentage of teachers who "agreed" with the statements made.

The data above provides for hope in higher education quality improvements through autonomous colleges. It is evident that even in Rajasthan where only government colleges are made autonomous, more than 50 percent of teachers have responded in a positive manner. Though autonomy is advocated as an alternative to the affiliating system it is not the panacea for all evils in higher education. The good or bad again depends much on the people within the system.

Autonomous scheme is also not free from criticisms. Some of the apprehensions against the scheme are : "autonomous colleges will promote elitism", "autonomy will be misused by colleges for corruption in admission and evaluation", "teachers and students will be victimised", "administrators will use their power arbitrarily to penalise the staff" and "teachers service conditions will be affected". Keeping these criticism in view queries were raised and the responses are tabulated below :

Table 3 – Teachers' Perception of the Adverse Effects of the Autonomous Scheme

Statement	A.P. (% age)	T.N. (% age)	Rajas- than (%age)	Total (% age)
1. Autonomy creates job insecurity.	27.78	21.58	35.16	25.6 (74.4)
2. Promotes exercise of power over students	35.36	40.54	36.20	38.5 (61.5)
3. Promotes malpractices in examination	12.21	25.23	35.16	24.0 (76.0)
4. Promotes malpractices in administration	17.26	26.28	38.36	26.4 (73.6)

Responses are in percentage of teachers who "agreed" to the statements. Figure in parenthesis pertain to teachers who "did not agree" to the statements.

It is interesting to note that only 25.6 percent of the total respondents felt that autonomy creates job insecurity while the rest of them felt that it is no way affects the job (74.4). Surprisingly, the teachers seem to have ignored taking note of the UGC guidelines item (12.ii(a)) which clearly states that "the employees (both teaching and non teaching) of a college on conferment

of autonomous status will continue to be governed by the same terms and conditions of service as on the date of conferment of autonomous status".⁸ The study reveals that the anxiety of the teachers towards job security is not based on authentic facts but on lack of awareness among the teaching community about the scheme and its merits & demerits. As regards the criticism, promoting exercise of power over students, 38.5 percent of teachers felt that it might do so but 61.5 percent did not agree. Similarly, as regards malpractices in examination and administration it is only 24 and 26.4 percent of teachers who agreed with statement whereas those who did not agree is 76 and 73.6 percent respectively. If we look at Table – 1 and Table – 3 together, we could only see the impact of one on the other.

With regard to autonomy promoting elitism, well, one needs to define the word elitism in the context of autonomous colleges. Whether we are referring to the accessibility to only richer students, or the institution becoming elite or the products becoming elite? However with regard to admission malpractices, affiliation system is no exception to this. Admission policy of autonomous colleges is to a great extent, guided by the existing regulations of the state government norms and the university norms. It has to respect the reservation policy of the state government and each college has to constitute its own admission committee and formulate guidelines.

Similarly credibility of autonomous college depends on the kind of evaluation system it adopts. Any malpractices, continued for long, places the credibility of institution at stake and once the institution loses its credibility, it is bound to die its own death. Society would accredit these colleges with the layman's criteria, and students will hesitate to enter such colleges and get degrees from them as it may not help them in building their career. These degrees and certificates are hardly of much use under the present challenges posed by the employment sector and also entry methods adopted by institutions of higher learning. They have started conducting their own entrance examinations to assess the competence of products developed at undergraduate level.

Epilogue

Of the total sample, 57.47 percent of the respondents are from Tamil Nadu. And amongst them 98.77 percent have favourable perceptions. It is to be noted that Tamil Nadu is the first state which implemented the autonomous scheme and have the largest number of colleges and the views of the teachers have withstood the test of decades of experience.

However, the experienced teachers from autonomous colleges have following secrets to reveals. Autonomy supports teachers freedom, will not affect any service conditions or it does not increase the working hours beyond the 40 hours per week specified by UGC. Powers of the management, depend on the representation of teachers in various bodies, viz. the Governing Body, Academic Council, Board of Studies, Examination Committees and so on. In other words, "Who" are the representatives and "How Many" and "How Effective" they are. Yes all these, provided teachers are conscientious and ready to be accountable to the teaching profession.

Autonomy is not a licence to a college to do anything it wants. The parent university has its role and responsibility at each stage of the process. The committees constituted (Governing Body, Academic Council, Board of Studies and others) in an autonomous college have representatives of university and the state government and UGC. These representatives are empowered to exercise their powers in decision making in the concerned bodies. Autonomy is not conferred for ever. It is initially for five years and can be extended after reviewing the performance. The parent university can revoke autonomy at any time, if found detrimental to the academic interest. As the country is moving towards

more liberalised and open system, let the college education system also be permitted to face the challenges.

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Rationalisation of Periodical Subscriptions

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T.V. Prafulla Chandra**

Introduction

Information is regarded as the sixth basic need of human beings. They get information both from formal and informal sources. Among formal sources, library and information centres (LICs) occupy a prominent and significant place in the dissemination of information. The growth and prosperity of any country depends on the importance accorded to research and development activities. For research and development, information is a crucial input.

LICs are established to provide nascent micro thought. As Dr. S.R. Ranganathan has rightly pointed out the main function of LICs is to provide pinpointed, exhaustive and expeditious micro thought. LICs strive to procure latest information and provide it to users to enable them to accelerate research. LICs, particularly those based in universities and specialised R & D units, are spending huge amounts for the subscription of periodicals, mostly those published from foreign countries.

Financial Crisis

In the past, a considerable number of librarians, particularly those working in R & D units and special libraries, operated mostly within the confines of their respective LICs building up huge collections oblivious of the expenditure incurred as the flow of funds was considerable. In the process, cooperation with other LICs to satisfy the demands of users was not given adequate attention.

Faced with budget crunch, the LICs can no longer afford to work in isolation. Inter-library cooperation is an imperative need in the present environment characterised by financial crisis, low purchase value of the rupee in comparison with foreign currencies such as U.S. Dollar, British Pound and Deutsche Mark, and escalation of subscription rates.

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Service-Oriented Approach

The present situation demands adoption of innovative approaches by librarians and a certain degree of understanding by the users. Dr. A. Lahiri, Joint Adviser, National Information System for Science and Technology (NISSAT), an organisation of the Department of Science and Technology, Government of India, strongly feels that LICs should adopt a service-oriented approach which involves the following (*NISSAT Newsletter*, 11:2, 1992):

- The suppliers (librarians) should know what the consumers (readers) want.
- The suppliers should explore alternative ways of meeting demands.
- The supply of information can be made from any source and not necessarily from the holdings of one's own library.
- Consumers should articulate their requirements keeping in mind the real-world situation and they should be prepared to bear certain inconveniences.

Impact of Rising Prices

According to NISSAT estimates, the cost of scientific and technological periodicals is increasing at the rate of 15-20 percent annually. In addition to this, since January 1992, there has been a rise of more than 30 percent in the rate of foreign exchange conversion. Table 1 shows the increase in the rate of foreign exchange conversion between 1988 and 1992.

Table 1 : Increase in Conversion Rates of Foreign Currencies

	Rate in Rupees*	
	July 1988	July 1992
British Pound	Rs. 26.10	Rs. 59.70
U.S. Dollar	Rs. 14.30	Rs. 31.90

* (Note : Recommended by Good Offices Committee)

Similarly, the annual subscription rates for periodicals have increased tremendously as the following examples taken from the Osmania University Library reveal.

Table 2 : Escalation of Periodical Subscription Rates

<i>Title of the Periodical</i>	<i>Annual Subscription Rate</i>	
	<i>1988</i>	<i>1992</i>
1. Cell	Rs. 3836 (\$280)	Rs. 9486 (\$365)
2. Journal of Fish Biology	Rs. 6486 (\$470)	Rs. 18216 (\$623)
3. Journal of Psychology	Rs. 1644 (\$120)	Rs. 6344 (\$210)
4. Journal of the American Statistical Association	Rs. 1164 (\$88)	Rs. 4833 (\$160)
5. Faraday Transactions	Rs. 7103 (£283)	Rs. 32720 (£678)
6. Perkin Transactions	Rs. 9964 (£397)	Rs. 29197 (£605)
7. Biological Abstracts	Rs. 64960 (\$4950)	Rs. 1,75,346 (\$6750)
8. Library and Information Science Abstracts	Rs. 4551 (£205)	Rs. 13721 (£293)

Note : The figures shown in Rupees are the actual amounts paid by the Osmania University Library.

Inflation had a negative impact on periodical subscriptions in university libraries. For example, in the Osmania University Library, the expenditure for periodical subscriptions has increased from Rs. 9 lakhs (actual budget provision Rs. 6.5 lakhs) in 1988 to Rs. 16 lakhs (actual budget provision Rs. 14.52 lakhs) in 1992. In spite of this, the number of foreign periodicals subscribed has been reduced from 321 to 252, that is, a reduction of 21.5 percent. This is not an isolated example. The same situation is more or less prevailing in other Indian academic and special libraries too.

The developed countries are also facing a similar problem, maybe with less intensity. The Document Supply Centre of The British Library at Boston Spa is an international resource centre for loans and supply of photocopies of documents. It has been asked to save a quarter of a million pounds of its periodicals acquisition budget in 1992. To achieve this, it proposes to identify titles which have not been lent or photocopied in the past three years to enable stoppage of renewal of their subscriptions. It has been reported in the *Times Higher Education Supplement* (7 Aug. 1992, p.11) that so far out of a total of 52,000 current subscriptions, it has identified 16,000 titles for cancellation.

Resource Sharing – An Imperative Need

Why resource sharing is a must? In the present times, the LICs cannot work in isolation. No LIC can claim that it can meet all the information needs of its users from its own collection. Resource sharing is a must in view of the following factors :

- The imperative need to satisfy the growing information needs of user. The researchers are venturing into newer, multi-disciplinary fields and they demand and need access to more number of periodicals.
- Most of the LICs such as those based in universities and R & D units are run on public funds. We cannot afford to waste public funds. To make optimum utilisation of resources, which is both a social obligation and a national necessity, we have to share our library resources with those of the neighbouring institutions. In this task, the heads of institutions and administrators have an obligation to initiate, plan and implement rationalisation.
- The need to save precious foreign exchange and economise in expenditure in view of the country's heavy indebtedness.
- The inability of most of the LICs to increase their budgets continuously, such as for example by 50 percent in 1992 to meet the increasing cost of periodical subscriptions.

Rationalisation of Periodical Acquisitions – A Pragmatic Solution

Rationalisation of periodical subscriptions and organised resource sharing may offer a possible pragmatic solution to the present crisis in LICs. In this, heads of institutions and librarians of local institutions meet and review periodical subscriptions. After detailed examination of duplication of periodical subscriptions, they identify the core and essential journals which each library should subscribe. Duplication of the periodical subscriptions should be eliminated to the maximum extent possible. Finally, methods to be adopted for resource sharing such as exchange of photocopies of contents pages, supply of photocopies of periodical articles, circulation of periodicals, etc. are explored. It is needless to say that the success of this concept depends on the coordination, cooperation and contribution of participating LICs. It is essential that the users of LICs are taken into confidence for rationalisa-

tion of periodicals and they should be convinced of the grave financial crisis and need for rationalisation.

A NISSAT study done in 1990 among 12 major libraries of Calcutta revealed that there was duplication in case of 203 periodical titles out of a total of 499 periodicals subscribed by these libraries involving an expenditure of Rs. 37,44,825. The same study estimated an overlap of Rs 6 million during current year. Through careful rationalisation of periodical subscriptions, a major portion of this expenditure can be avoided.

Contribution of NISSAT

NISSAT has made commendable contribution in the area of rationalisation of periodical subscriptions and resource sharing. It has promoted formation of Consultative Committees in 16 major cities, namely, Ahmedabad, Bangalore, Bombay, Calcutta, Delhi, Lucknow, Mysore, Nagpur, Pune, Trivandrum, Bhopal, Chandigarh, Cochin, Hyderabad, Kanpur and Visakhapatnam. Already the contact points of Consultative Committees have been established in ten cities and in the rest they are being explored. Through these Consultative Committees, librarians in each city are brought together for discussion and understanding on their acquisition policies particularly those relating to periodical subscriptions. They are expected to examine the scope for resource sharing, minimising duplication of periodical subscriptions among local LICs. Such an interaction, it is hoped, would result in rationalisation of periodical subscriptions eliminating duplication to the extent possible thereby effecting considerable savings in library budgets and outflow of foreign exchange. According to NISSAT, during 1991 subscription year Rs. 29.9 lakhs were saved through rationalisation of periodical subscriptions among cooperating libraries.

Due to the initiative and deliberations of the Consultative Committees operating in various cities, steps are being taken to identify the extent of duplication of periodical subscriptions and achieve Rationalisation of periodical subscriptions. Union catalogues of periodicals subscribed by local LICs are also being compiled to facilitate rationalisation and resource sharing.

The Osmania Initiative

In Hyderabad, it has been estimated that the rate of duplication of periodical subscriptions in major Hyderabad libraries (numbering about 30) was about 30 percent during 1990. Due to duplication, two and half times (about Rs. 50 lakhs) of the original cost (about Rs. 20 lakhs) of periodicals is being spent. This estimate is

based on the study of periodicals whose annual subscription is Rs. 5000 and above.

Every fifth periodical subscribed by libraries in Osmania University campus area is available within a radius of 3 kms. A study done by E. Rama Reddy, K. Nagaraja Rao and Md Burhanuddin of the University of Hyderabad revealed that the duplication of periodical subscriptions between Osmania University Library and the University of Hyderabad Library was 170 titles during 1990.

Concerned at the present grave situations the Department of Library and Information Science, Osmania University, took the initiative and organised a meeting of librarians/heads of LICs on 30 September 1992 to work out strategies for rationalisation of periodical subscriptions and resource sharing.

Dr. A. Lahiri and Prof. Malla Reddy, Vice-Chancellor of Osmania University, who attended this meeting whole-heartedly supported and encouraged the idea and promised to provide all the necessary support. Prof. Reddy asked the librarians to come out with specific proposals after their deliberations and assured that this issue would be taken up at higher level (institutional level) subsequently.

The participating librarians accepted the idea of rationalisation of periodical subscriptions and resource sharing in principle and felt that concrete results could be achieved only when such proposals receive acceptance and support of administrators and users of participating institutions.

In the above meeting, the problems were discussed at length under guidance of Dr. Lahiri. The following two decisions were taken :

- i) To look into rationalisation of periodical subscriptions and plan for its implementation from 1993 subscriptions.
- ii) To prepare a project report for Hyderabad Library Network (HYLIBNET) and submit it to the Government of India through NISSAT for possible funding.

For the implementation of rationalisation of periodical subscriptions, a Core Group was formed with the following six Sub-Groups :

- i) Humanities
- ii) Social Sciences

- iii) **Agriculture and Life Sciences**
- iv) **Engineering, Defence and Technology**
- v) **Physical and Chemical Sciences**
- vi) **Management Science**

The Core Group is chaired by Mr. L.J. Haravu, Manager, Library and Documentation Services, ICRISAT and each Sub-Group has a convenor from the concerned subject library. As for rationalisation, it was decided that the convenor of each Sub-Group should come out with concrete proposals for rationalisation among libraries of the concerned subject by the first week of November 1992 to enable implementation w.e.f. 1993 subscriptions. The Core Group met on 9 October 1992 and chalked down the programme of action. It was felt that there is a need for a meeting of heads of institutions to prepare a policy paper. The Core Group also suggested to have free exchange of content pages of periodicals among the libraries subject to institutional limitations.

The Core Group also decided to act as Core Working Group for HYLIBNET by coopting specialists from computer science and telecommunication fields. This network supports access to catalogues of other libraries, both within and outside the Hyderabad city. It was felt that the present available infrastructure such as NIC-NET, INDONET, GPSS (of VSNL) can be effectively utilised for information retrieval and to get access to the other networks.

Suggestions

To achieve rationalisation of periodical subscriptions and to facilitate resource sharing among local LICs the following suggestions may be considered :

- 1) A Standing Committee of heads of participating institutions has to be formed for getting support and administrative sanction and to prepare policy statement on rationalisation of periodical subscriptions and resource sharing.
- 2) In view of its large size and central location, the Osmania University can be entrusted with the responsibility of providing leadership and institutional support for resource sharing. For this purpose, a clearing house or a documentation centre should be established at the Osmania University Library. This has to be planned involving all the participating institutions. Such a centre

would supplement and complement the information needs of users of the participating institutions.

This clearing house or documentation centre receives content pages of periodicals from the participating libraries and after cummulation, it circulates them to all of them at regular intervals. On the basis of users' demands for individual articles, it procures them from the concerned LICs and supplies them to the users against payment. It should be staffed with dynamic and committed professionals and provided with necessary infrastructure facilities such as photocopying machine, micro computers, baby off-set machine, telephone, etc. In course of time, this centre can take up other programmes such as CD-ROM search, on-line search, etc. and form the focal point for the proposed HYLIBET.

3) The students, research scholars and teachers of postgraduate centre affiliated to the Osmania University, located both in Hyderabad and outside, are denied access to periodical literature. Moreover, there is no coordination between the Osmania University Library and postgraduate centres in periodical acquisitions. Steps should be taken to establish proper linkages between them so that users located at the postgraduate centres gain access to periodical literature. Postgraduate centres should also form part of the proposed HYLIBNET.

4) The participating libraries should operate with a sense of cooperation and coordination.

5) We cannot avoid all duplication of periodical subscriptions. Subscription of certain periodical titles may be inevitable because of institutional needs/objectives/special requirements. Each institution has to identify its core journals and the rest of the titles have to be decided in consultation and coordination with participating libraries. For this, the librarians of the participating libraries should identify the titles to be discontinued. Then, these plans for rationalisation should be presented to the heads of institutions for their evaluation and acceptance.

There is no doubt that rationalisation would affect the users and put them to some inconvenience. The users should understand the prevailing situation and cooperate with the LICs. In fact, in course of time they are likely to derive maximum benefit as they will have greater access to all the documentary sources available in major local libraries, made possible through resource sharing. Resource sharing would be a major step towards breaking institutional barriers in the free flow of information and sharing of knowledge.

Pursuit of Excellence

Sri P. Rangarajan Kumaramangalam, Minister of State for Science and Technology, Ocean Development, Electronics and Parliamentary Affairs, Govt. of India, delivered the Convocation Address at the ninth annual convocation of the Bharathiar University, Coimbatore. He said, "The pursuit of excellence does not necessarily mean achieving perfectionism. Nobody is perfect and for that matter nothing is perfect. Search for excellence only implies operating at the very frontier of one's abilities and constantly trying to further extend this frontier. We all know that human intelligence operates at a level far below its total capacity. All our energies should be harnessed to expand our intellect. This cannot be a one time limited exercise. It has to be inculcated as an attitude of mind, a permanent endeavour." Excerpts

We all know that the education has spread fast to the nooks and corners of the world – thanks to the technological growth in the field of communication, which has compressed the world to a global village. We all know that the science is progressing at a breakneck speed overcoming barriers after barriers, exploring new frontiers every moment. We all know that the rate of technological obsolescence has reached a stage where in many areas technology becomes obsolete the moment it is mastered. We all know the influence which the education, science & technology exercise in the context of human affairs. In fact, it is widely believed that in the modern world technology is the panacea for all the problems faced by the mankind. But today, I am forced to pause and think that if it were really so, then the world should have already been relieved of all the miseries. It should have reached the stage where there was complete fulfilment of the basic needs of every person – whether poor or rich, whether weak or strong, whether low or high. It should have reached the stage where there was little conflict of interests. But what we witness today is a striking contrast to this rosy picture. The world is in a turmoil. Whether you see the political or the economic or the social fields, the strain which the new international order is experiencing

is self-evident. New national identities are being forged leaving behind the train of bloodshed and animosity. Prolonged starvation is forcing a large number of people to fight a losing battle against the ever increasing pangs of hunger. The vacant eyes peeping out of a lifeless pale face of a starved body has a long tale of misery to narrate. Human lives are being sacrificed mercilessly on the altar of dogmatic social, political and religious ideologies. When there is so much of progress in education and science & technology, why has the world come to such a pass? It is this question which has been gnawing at my mind.

One cannot but wonder whether our education system has really been able to bring out the best in human intelligence? Does it really address itself to the whole of the human intelligence or is it only embellishing certain faculties of mind. Apparently, the emphasis today is largely on the ability to recall and reproduce. The spirit of enquiry, the scientific temper, the ability to analyse all have to be developed simultaneously. Only such an education system, to my mind, could give a student the discretion to judge and choose the best option. In fact it is this lack of emphasis on scientific temper which has allowed a thought

process to gain ground that there are certain feelings on which human rationality cannot have any control; that there are certain aspects of human behaviour which would not listen to the voice of reason and over the years the voice of reason has been effectively silenced, in those aspects from the human lives. My plea to you all is to see that this voice of reason is acknowledged, heard and acted upon. The late Prime Minister Pt. Jawaharlal Nehru had been uniformly making an impassioned appeal for developing scientific temper in the country. I have a feeling that the appeal for scientific temper was not merely a reflection of his urge or desire to build a modern India on scientific foundation, it was the vision of the great statesman who knew that our country, which boasted of unity in its diversity, can sustain this in the face of onslaught of divisive forces only through reason and scientific temper.

In a great country like ours, which has numerous religions, castes, cultures and life styles, the abiding binding force has always been the temperance, the tolerance and the assimilative ability to synthesize various cultures and religious life styles under one umbrella of Indian Nation. Pt. Jawaharlal Nehru talked of scientific temper because he wanted to give a permanent scientific base of the natural genius of Indian Nation to assimilate and absorb. He wanted to work towards a society where the scientific temper and spirit of tolerance allowed the co-existence of these diverse elements. The nation has enshrined these noble ideals in the Constitution itself.

When you go out in the world to start a life of your own, I would like you to bear in mind that along with building your own life, you also work for the noble task of nation building. And this can only be achieved by working in an atmosphere of conflict resolution and not conflict creation. You have to work for fusion and not for fission. You have to work

for integration and not for disintegration. My appeal for scientific temper does not militate against any religion, sentiment or belief. My only aim is to highlight the fact that rational approach recognises that in any situation, there are bound to be many areas of agreement along with the areas of conflict and the good lesson in the life is to identify areas of agreement and bring the forces together on that area so that all differences are unitedly thrashed out in a spirit of give and take.

The world today has become extremely competitive. For every job, for every post, for every niche, for every market there is very fierce competition. Competition means conflicts and what would conflict imply if not viewed with scientific temper? An unscientific mind always has a temptation to explain away the failures by easy excuses like non-cooperation, discrimination, arbitrariness, misfortune and so on. The crux of the matter is that excellence is always recognised in any environment. Even if one door is closed to you arbitrarily, if you have the mettle you will find many other openings. The scientific temper tells you that failure is not the end of the world, it is only the beginning of the quest.

In this fiercely competitive world, persistent pursuit of excellence is your only guarantee of success. This alone could keep you high above the alleged forces of discrimination, arbitrariness and injustice. This may look like a tall order which it is certainly not. The pursuit of excellence does not necessarily mean achieving perfectionism. Nobody is perfect and for that matter nothing is perfect. Search for excellence only implies operating at the very frontier of one's abilities and constantly trying to further extend this frontier. We all know that human intelligence operates at a level far below its total capacity. All our energies should be harnessed to expand our intellect. This cannot be a one time limited exercise. It has to be inculcated as

an attitude of mind, a permanent endeavour. There should be no room for gloom or frustration in your life. There is vast potentiality as well as opportunity for you to exploit provided you have the perseverance.

The ability to achieve comes from the ability to take challenges with grit and determination and accept failures, if any, as a temporary set back. There are people who feel that ambition is dangerous; that it is one of the baser feelings of human mind which needs to be curbed. I, on the other hand, find that it is ambition alone which has made it possible to achieve whatever achievements this world has witnessed ever since its inception. Perhaps there is a need to distinguish between the constructive and unbridled ambitions. The bloodiest of wars, mass destruction of human lives, rape of natural resources, exploitation of man by man have all been due to unbridled ambition. Every irrational human behaviour seeks to attain its objectives through short cuts, deceit and manipulation and in this process the ethos, the values of the society are all sacrificed. Constructive ambition, on the other hand, generates an urge for creativity, an urge to contribute positively to the society, an urge to do the nation pride.

Sometimes there may be temptation to allow short run self interest to override the national interest. But if seen positively, there is a similarity of interest between the bright future of your generation and bright future of our nation. No man is an island. Your excellence, your achievement, your prosperity, your well-being can give real contentment if it is in the context of a nation which is progressing well and is at peace with itself. Therefore, I have no hesitation in saying that for your success, for your future and for the country, it is essential that you tread the path of truthfulness, honesty and discipline.

Lord Buddha, Mahatma Gandhi have all implored us to be truthful. The motto of our country is "*Satya Meva Jayate*" – "Truth alone Triumphs". Truth is not only not telling of lies, it is much more than this. According to Mahatma Gandhi, "Truthfulness, to my mind is an attribute of human character. It is a way of life. It trains mind to approach everything in life with a sense of integrity and honesty".

In fact His Excellency the Governor of Tamil Nadu is a noted Gandhian and can do better justice to bring out the great esteem in which Mahatma Gandhi had held this mother of all virtues. But I may add that this nation had been built on the gospel of truth. Any digression from the path shown by the founder-father of this nation would imply weakening of the very foundations of the nation. And, dear friends, no superstructure with weak foundation can last long.

I will like to dwell at some length on the question of discipline also. Discipline itself lays down a code of conduct for the life. It harnesses the benefits of all the other virtues. We have to pause and think as to why some other countries which are similarly placed as our's in this extremely competitive world, have been more successful. Illustration of the countries like Taiwan, Korea, Singapore and Malaysia is before us. In fact even China, despite the fact that it has a more rigid structure, has become a force to reckon with in the world market. In the economic field these countries have stolen a march over us perhaps for the single most important reason of discipline followed by them. In fact we all know how well the Indians work in foreign environment. It is not that the ability of Indians working abroad is very much higher than that of their brethren here. It is only due to the fact that a better disciplined environment harnesses their potentiality to the optimal level. Therefore, if, in the comity of nations, India has to have a place of pride,

the youth have to rediscover the indispensability of discipline.

Dear friends, our country has won its freedom after centuries of servility with great effort. Thousands of patriots laid their lives to see India free. Millions of them underwent worst possible agonies of the alien ruler's tyranny. Sacrifice of those thousands and thousands of Indians has given us this freedom and a new future to the nation. Future of India which Mahatma Gandhi dreamt of; future of India lovingly nurtured by Pt. Jawaharlal Nehru is today in the hands of your generation. You have to decide as to how the noble task of building our nation brick by brick is to be carried further. It is for you to decide whether you have to suc-

cumb to unscientific irrational behaviour and sacrifice our nation on the altar of narrow sectarian thoughts or you have to see India a strong, self-reliant and proud nation. In short, you have to decide whether you want to build India with the spirit of scientific temper, truthfulness, sincerity and discipline or let communal, parochial, reactionary forces poison the nation to death.

My faith in the wealth and strength of the country is infinite. Therefore I call upon you to carry the task of nation building on scientific lines so that our society is free from all conflicts, strains and fissures. It was easier to consolidate the post-Independent fragmented India. But it is much more difficult to bridge the

emotional gulf created by sectarian and unscientific prejudices. Posterity always owe a debt to the present. We too owe a debt to our forefathers who shed their lives to make us free citizens.

Most appropriate way to repay this debt is by fulfilling their dream of building a united and strong Indian nation. I can do no better than to conclude my address by quoting Pt. Jawaharlal Nehru "I have loved India and sought to serve her not because of her geographical magnitude, not even because she was great in the past, but because of my faith in her today and my belief that she will stand for truth and freedom and the higher things of life".

STRUCTURAL STEEL HANDBOOK

FOR IS:226 and IS:2062 STEELS

B.N. Sridhara, Managing Director of Space-Tech Private Limited, Consulting Engineers, Bangalore and Technical advisor to the Torsteel Research Foundation in India.

The Bureau of Indian standards revised the code of practice IS:800-1962 and published the revised code IS:800-1984 (second revision) under the new title code of practice for General Construction in Steel. As a result of the significant changes, the Torsteel Research Foundation in India felt that there was an immediate need for a structural Steel Handbook based on the revised code. The handbook gives permissible stresses and safe loads for beams, built-up beams, plate girders, joist and channel columns and single and double angle ties and struts, calculated in accordance with the requirements of the revised code. All units are in S.I. as recommended in the code. Also, safe loads for framed beam connections and seated beam connections have been tabulated. Coefficients for the design of weld groups have been given with worked examples on the use of tables. This handbook will be an invaluable reference to designers, engineers, architects, structural consultants and students of structural engineering.



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Reorganising Undergraduate Courses

Introduction of vocational courses and enhanced use of the electronic media for imparting education were among the steps being taken by the University Grants Commission (UGC) to reorganise the undergraduate degree structure, said the UGC Vice-Chairman, Prof. S.K. Khanna. The vocational courses will include electronics and computer sciences.

The changes would be introduced in about six months in universities which accepted the proposals. The UGC would provide financial assistance to set up the infrastructure. "If adopted, this will change the complexion of the first degree education in the country," Mr. Khanna said. He was speaking at a function organised by the Madras University at the Dr. A.L. Mudaliar PG Institute of Basic Medical Sciences, Taramani.

Networking of the universities was also being considered, so that students could share the best expertise available, Prof. Khanna said. Information technologies would be put to optimum use. Distance education, through the electronic media, would supplement the formal classroom education. This would also bring down the expenditure on higher education to some extent.

The education sector has been growing at the rate of about five percent, he said and added that the participation of private sector was imperative as UGC alone could not bear the entire cost of education.

Dr. P.K. Sen, member, UGC, said Madras University was among the first to introduce the semester system, which it later abandoned. The UGC was studying the reasons for the failure of the system.

The Tamil Nadu Education Minister, Mr. C. Aranganayagam, who presided, said universities should undertake socially relevant research projects which would provide solutions to problems faced by the country in different spheres. Courses offered by universities should be restructured and made job-oriented. The State Government would take steps to implement any suggestion of the UGC in this regard.

The Vice-Chancellor of Madras University, Prof. S. Sathikh, welcoming the gathering, said the university would receive Rs. 1.55 crores during the Eighth Plan towards its development.

The Director of the PG Institute, Dr. S.P. Tyagarajan, said the Institute undertook research projects in basic and applied sciences and was collaborating with countries such as the U.S. and the U.K. on some research projects.

Higher Allocation for Education

The allocation for the education sector has been raised by 37.6 percent from Rs. 952 crore to Rs. 1310 crore in Union Budget for 1993-94. Following are the extracts from the speech the Union Finance Minister, Dr. Manmohan Singh delivered in the Lok Sabha while presenting the budget for 1993-94.

"The development of human resources is given high priority in the Eighth Plan; Hon'ble Members are also aware that education is an area which is very close to my heart. I am, therefore, particularly happy to announce that the outlay for education is being increased from Rs 952 crore to Rs 1310 crore, which is a step up

of 37.6 percent. Universal provision of primary education and adult literacy of satisfactory quality, particularly for girls and women, is a pre-requisite for the modernisation of the economy and the society. I am happy to inform Honourable Members that our total literacy campaigns are breaking new grounds, and are now being implemented in 192 districts covering approximately 430 lakh adult learners. A new scheme is being launched for the improvement of primary education in educationally backward districts and in districts where the total literacy campaigns have been successful, leading to an enhanced demand for primary education. In these districts, districts specific and population specific plans for achieving universalisation of elementary education are being prepared. Twenty to 25 districts out of about 200 educationally backward districts where female literacy is below national average, will be taken up for preparation of districts plans in 1993-94. In the sphere of higher and technical education, modernization and upgradation would receive high priority. Keeping in view the aspirations of the North-Eastern region, the government has decided to set-up a university in Nagaland and an Indian Institute of Technology in Assam".

Varsity Education in the New Eco Policy

The service conditions of teachers and the selection of students should lay due emphasis on the search for excellence, said Mr. C. Subramaniam, former Maharashtra Governor in Madras while speaking at a seminar on University Education in the New Economic Policy held at the Dr. Arcot Ramaswami Mudaliar and Dr. Arcot Lakshmanaswami Mudaliar Centre for Commonwealth and International Studies (DARALCS).

Developing countries had to grapple with poverty, and science and technology should be related to society and economic theory, he said.

Research and development funds of industry could be routed through the university system, without affecting the autonomy of functioning, said Dr. Vedagiri Shanmugasundaram, Director, DARALCS.

Prof. S. V. Chitti Babu, Vice-Chairman, Tamil Nadu State Council for Higher Education, said a conference of vice-chancellors had discussed the need for the central and state governments to continue the system of providing block grants, while the universities generated their own resources for development.

Prof. M.V. Mathur, former Vice-Chancellor, Rajasthan University, traced the experience of the West in involving the private sector and liberalisation of the university system.

IIT Delhi Field Unit

The Indian Institute of Technology(IIT), Delhi has opened a Foundation for Innovation & Technology Transfer, FITT extension office in Noida (UP) near Delhi.

The FITT extension office will have access to IIT computer resources, library, national and international data base through a complete terminal to be installed at the proposed office.

It will provide basic R&D inputs at IIT, Delhi to assist industries in choosing the right technology, and diversify their products.

The FITT will provide information support service, industrial clinic service, a human resource development programme, total quality management, technology-based services and diagnostic survey reports.

Ambedkar Open Varsity Offers Doctoral Programme

Persons without any formal academic qualification can register themselves directly for doctorate degree at the Dr B.R. Ambedkar Open University from the current year.

Under a dual entry scheme, India's first open university proposes to allow persons who have attained scholarly brilliance through publications to undertake Ph.D. programmes, besides the conventional mode of allowing only those who have cleared a Master's degree to join M.Phil. and Ph.D.

An expert committee would scrutinise candidates joining the Ph.D. programme through the unconventional mode, said the University's Vice-Chancellor, Prof S. Bashiruddin.

This year, the university would introduce a three-year Master's course in business administration and a two-year M.Sc. course in mathematics, besides new diploma courses in marketing management, environmental education, consumer education, women and health, and a certificate programme in Urdu medium in food and nutrition.

The university also proposes to launch a refresher course for correspondents of regional newspapers, in collaboration with the state commissionerate of information and public relations.

The Commonwealth of Learning, Vancouver(Canada) has sanctioned to the university 5,000 Canadian dollars (Rs 1.17 lakhs) towards scholarship for 236 meritorious and economically backward students, besides providing another 5,000 U.S. dollars (Rs 1.5 lakhs) for a mobile science laboratory, Prof Bashiruddin said.

IGNOU's Video Production Unit

Distance education should be used to strengthen primary education in the country, the Chairman of the Finance Commission, Mr. K.C.

Pant, said in New Delhi recently. He was inaugurating the "Video Production Set-up" of the Indira Gandhi National Open University(IGNOU) established under the Overseas Development Administration(ODA) grant from Britain. He stressed the importance of universal elementary education with no drop-outs. He said there was immense pressure of numbers on secondary and higher education in India.

The British High Commissioner, Sir Nicholas Fern, who presided, said India and Great Britain shared similar educational and political institutions. Stating the IGNOU was moving in the right direction, he said the ODA would note the positive development for any future grant.

The IGNOU Vice-Chancellor, Prof. V.C. Kulandai Swamy, announced that the Open Learning Institute of Hong Kong, which had so far been buying material from the universities of Britain, Australia and Canada, had opted to buy instruction material from the IGNOU in the discipline of management.

IIT Develops Bionic Arm

Engineers at the Indian Institute of Technology, Kanpur are reported to have developed India's first bionic prostheses - an artificial hand that can be moved by impulses emerging directly from the brain.

The battery-powered, electronically-controlled hand is intended for accident victims who have lost their hands below the elbow, according to researchers at the department of electrical engineering.

Normal hand movements are executed when signals from the brain direct the hand muscles to move. In amputees, these signals are terminated at the stump - the site of amputation.

The new device picks up the signals from the brain reaching the muscles, and a motor drives finger movements. The model can be used to grip and release objects.

"This is a will-operated system. An amputee who wants to move fingers just has to will it", said

Professor G. C. Ray, a senior IIT research engineer who led the team that developed the device.

Goyal Foundation Awards Presented

Goyal Foundation Awards for 1993 carrying a prize of Rupees one lac each besides a Gold Medal and citation were conferred by Prof. S.Z. Qasim, the noted Oceanographer and Member, Planning Commission, Govt. of India at a colourful ceremony held at Kurukshetra University recently. Prof. C.N.R. Rao, Director, Indian Institute of Science and President, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, Prof. S.K. Joshi, Director General, Council of Scientific Research (CSIR) and Secretary, Govt. of India, Department of Scientific and Industrial Research, New Delhi and Dr. P.M. Bhargava, Distinguished Fellow at the Centre for Cellular and Molecular Biology (CCMB), Hyderabad won the awards for their contributions in the fields of Chemical, Physical and Life Sciences respectively. While Professor Rao was honoured for his outstanding work in Solid State Chemistry and Molecular Spectroscopy, Prof. Joshi got the award for opening new areas in the study of Solid State Physics. Dr. Bhargava who established CCMB, a unique Institution of its kind in the world, has made significant contribution in the study of Seminalplasmin proteins which may provide lead for developing anti-AIDS compounds. While Prof. Joshi and Dr. Bhargava received the awards personally, awards on behalf of Prof. Rao was received by Prof. S.V. Kessar of Panjab University. For certain unavoidable reasons, the award in the area of Hindi Literature could not be finalised this year and will be awarded alongwith the Goyal Prizes for 1994.

The award ceremony was presided over by the renowned Botanical Scientist and an arid zone specialist Dr. S. Arya, Vice-Chancellor of the University.

While highlighting the achievements of the CSIR, Prof. Joshi said

that the industrial production in India based on CSIR had technologies was estimated to be of the order of Rs. 1600 crores covering a wide variety of goods and processes. Further, the CSIR had developed technologies to manufacture comparatively safer pesticides, accounting for 25% of total production of technical pesticides in India. New drugs developed by the CSIR included guglipid and centchroman, which was the only non-steroidal, once a week, female contraceptive pill. He further added that his own research work on electrons and phonons in disordered system provided a better understanding of the electrical and optical properties of a large number of metallic alloys.

Dr. Bhargava, on the other hand, expressed his disappointment on the official indifference in providing necessary infrastructural help in thrust areas where India could acquire world leadership. Citing his own example, Dr. Bhargava said that Seminalplasmin, which is a potent anti-HIV agent (HIV is the virus that causes AIDS) developed by his group, did not get enough support even from the CCMB, the Institute which he conceived and built. He had now decided to transfer this work to the Director of French AIDS agency, Prof. Jean-Paul Levy. His dig that "We not only know how to miss a catch but we are also desperate to throw away a catch that has fallen in our own hands because we would not like our team to win", highlighted the general apathy and lack of appreciation of the work done by several bright Indian scientists.

In his presidential remarks, Dr. S. Arya, Vice-Chancellor, Kurukshetra University, lauded the Goyal Foundation in liberally funding such a noble cause. Such a gesture in his opinion should go a long way in promoting the cause of science in India.

Prof. Qasim and the awardees provided a rich feast of intellectual excursions into the mysteries of subatomic particles, biomolecules and the grandeur of nature, through

their talks which were highly appreciated by a discerning audience.

Status of Women in India

A two-day Inter-Department Seminar on 'The Status of Women in Ancient India as reflected in Sanskrit Literature', was held recently under the auspices of the Department of Sanskrit, Gauhati University.

Smt. Renu Devi, Dean, Faculty of Arts, Gauhati University while inaugurating the seminar dwelt at length on the unhappy state of affairs in respect of women in modern India.

Dr. N.K. Choudhury, Vice-Chancellor, who was the chief guest, lauded the efforts of the Sanskrit Department and expressed the hope that the deliberations would benefit the society for the wisdom embodied in Sanskrit literature.

Seventeen research papers, dealing with areas from the vedic period upto the classical Sanskrit period, were presented by teachers of various departments.

Dr. A.C. Barthakuria, Head of the Sanskrit Department directed the seminar.

NCRA Graduate School

National Centre for Radio Astrophysics (NCRA) of the Tata Institute of Fundamental Research, Pune invites applications for admission as Research Scholars to its graduate school. Selected candidates will work towards a Ph.D. degree in Astronomy and Astrophysics. Selection will be on the basis of a written test and interviews to be held in early July 1993. NCRA is one of the leading centres in the country for front-line research in Radio Astronomy and Astrophysics. It operates the Ooty Radio Telescope and is currently building the Giant Metrewave Radio Telescope (GMRT) near Pune, which will be the world's largest radio telescope operating at low radio frequencies. Scheduled for completion in 1994, GMRT will consist of 30 fully steerable parabolic dishes each with a diameter of 45 meters. Current areas of research at NCRA include topics in Extragalactic and Galactic

radio astronomy, such as quasars, radio galaxies, observational cosmology, galaxy formation, pulsars, supernova remnants, stars and stellar systems, Interstellar medium, Solar wind, etc.

Research scholars will undergo graduate courses in Physics, Astronomy and related areas for two semesters starting in August, 1993. Students can register for a Ph.D. programme after successful completion of the course and project work. Outstanding candidates may be absorbed in the staff after their Ph.D. The graduate courses are being organised jointly with the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune.

Candidates must have obtained first class M.Sc. in Physics or Astronomy, or Bachelor's or Master's degree in electronics/electrical/communication engineering with adequate background and strong interest and aptitude in physics and mathematics. Candidates expecting their degrees by July 1993 may also apply. While a formal degree in astronomy/astrophysics is not necessary, a general interest in this field is highly desirable.

Research scholars will be paid a monthly honorarium of Rs. 2,200/-. This could be subsequently raised to Rs. 2,500/- based on their satisfactory performance. There is a book grant of Rs. 2,000/- per annum. Appointments are generally renewable upto 5 years.

Applications are to be made in prescribed forms which can be obtained by writing to Administrative Officer (II), NCRA (TIFR), Post Bag No.3, Ganeshkhind, Pune 411007, along with a 24 x 11 cm self-addressed, stamped (Rs. 2.00) envelope. Last date for receipt of completed applications is April 1, 1993.

Cambridge Varsity Scholarship

Applications have been invited for scholarship from students residing in Maharashtra, Gujarat or Goa who have secured admission to Cambridge University (U.K.), for undergraduate or postgraduate courses

commencing in the academic year October, 1993.

The amount of the scholarship would be about Rs 40,000 per year. Those who have secured admission should apply, providing the data pertaining to their academic career and proof of admission, to Mr A.K. Parikh, Cambridge Society Bombay Scholarship Fund, 91, Landmark, Dahanukar Marg, Bombay-400026.

Admission to Biotechnology Courses

The Jawaharlal Nehru University (JNU) will hold the All-India Combined Entrance Examination for admission to M.Sc./M.Tech biotechnology and M.Sc. (Agricultural biotechnology) on behalf of twelve other participating universities on Sunday, May 23, 1993.

Besides JNU, the other participating universities are Banaras Hindu University, Devi Ahilya Vishwavidyalaya, Guru Nanak Dev University, M.S. University of Baroda, Madurai Kamaraj University, Poona University, Goa University, G.B. Pant University of Agriculture and Technology, Central University, Hyderabad (all M.Sc. Biotechnology), Tamil Nadu Agricultural University, Coimbatore, G.B. Pant University of Agriculture and Technology, Pant Nagar (M.Sc. Agricultural Biotechnology), Anna University, Madras and Jadavpur University, Calcutta (M.Tech. Biotechnology).

The combined admission test will be held at 27 centres all over the country. The centres are Ahmedabad, Bangalore, Baroda, Bhubaneswar, Bombay, Calcutta, Chandigarh, Cochin, Coimbatore, Dehradun, Delhi, Gauhati, Goa, Hyderabad, Indore, Jaipur, Jammu, Lucknow, Madras, Madurai, Pant Nagar, Patna, Pune, Ranchi, Shillong, Varanasi and Vijayawada.

Biotechnology is a newly emerging multi-disciplinary area on the educational scene and programmes have been developed to meet the growing demand of training manpower for a meaningful biotechnology activity in the country exposing the students to exciting develop-

ments in the area of genetic engineering and biotechnology and their exploitation in industry, agriculture and medicine, etc.

Application forms along with information bulletin can be obtained on cash payment of Rs. 20/- per set by calling personally on any of the concerned universities. However, those wishing to get the form by post must approach the Assistant Registrar (Combined Entrance Examination Biotechnology), Jawaharlal Nehru University, New Delhi along with a crossed Indian Postal Order for Rs. 40/- payable to Jawaharlal Nehru University to cover the cost of one set of application form and postage with a self-addressed unstamped envelope of the size 28 x 20 cms. Since there are separate application forms, for each programme, the candidates should clearly indicate their preference.

Forms will be issued upto April 14, 1993. Completed application forms are required to be mailed only to Jawaharlal Nehru University and not to other participating Universities latest by April 19, 1993.

Candidates selected for admission to M.Sc./M.Tech programmes in biotechnology will be eligible to receive scholarships/fellowships.

Indian Navy Promotes Defence Technology

The Indian navy has instituted a new scheme for indigenously developing marine systems and equipment in the field of defence technology by tapping the potential of engineering students.

The naval headquarters is reported to have sent out details of the scheme to all IITs, reputed universities and colleges for obtaining names of suitable students for shortlisting with the navy.

These motivated engineering students will be required to explore new avenues for undertaking innovative research work in generic areas of marine defence systems and technology, including electronic, electrical hull, propulsion, weapons and associated machinery.

National Symposium on Biotechnology

A National Symposium on 'Prospects and Problems of Biotechnology' was organised by the Bioved Research Society, Allahabad, under the auspices of the Department of Science and Technology at the Botany Department of Allahabad University recently.

Dr. Anuj Sinha, Director, Department of Science and Technology, in his inaugural address, said that there was tremendous scope for biotechnology in the field of agriculture, health and sanitation and industrial activities. He emphasised the importance of technology in the production pattern and said that there was little scope for increasing agricultural production merely by increasing the area under cultivation. "Thus it has become imperative to concentrate on exploring the potential for biotechnology," he said.

The inaugural session was presided over by Dr NKS Gaur, ex-UP minister for higher education, who spoke on the importance of genetic engineering in improving the strains of crops.

During the inaugural session, the Bioved Research Society presented fellowships and awards honouring the distinguished scientists and researchers. Honorary fellow awards were given to Prof AN Chatteraj, Prof KC Pandey, Prof SA Suryavanshi, Prof Abrar M Khan, and Prof DD Nautiyal.

Fellow awards were presented to Prof DN Vishnoi, Dr SC Atri, Dr SD Mishra, Dr SL Mishra, Dr Neeta Sharma, and Dr VPS Chahal.

Dr TA Khan, Dr Sonali Chaturvedi and Dr Gopal Pandey, bagged the Young Scientist award. Distinguished Service award went to Dr Brijesh Kant Dwivedi. Scientist of

the Year award was given to Dr MM Alam, Aligarh.

Five books (Survey of researches in life science in 5 volumes) were released in the inaugural session by Dr Anuj Sinha and Dr NKS Gaur. New Approaches in Agricultural Technology in 3 volumes, Integrated Pest Management and Bibliography of Biological Control of Nematodes.

During the second technical session scientists emphasised the need to protect the rich biodiversity of India. They emphasised that unchecked hyper extraction of natural resources for needbased consumption pattern of the society was the main cause of the reducing biodiversity.

During the third session the scientist suggested biological measures to control plant diseases. Dr TA Khan on the basis of his experiments reported that some natural endowments such as 'Neem' cake and green leaves were capable of controlling nematodes well as providing essential nutrients to the plants. Scientists at this session unanimously recommended the scientific use of traditional methods of plant protection.

During the next session performance of some hybrid varieties which are less water consuming, less fertilizer consuming and disease resistant was discussed. Scientists of the IARI reported that progress made so far in the development of hybrid varieties was very encouraging.

The poster session was very informative. The posters conveyed brilliantly the control of nematode diseases by biological measures.

Some distinguished scientists of the country delivered lectures in the invited lecture sessions. Prof R Sahai, Director, NBAGR, Karnal,

expressed his view about the need for the preservation of traditional varieties of seeds and emphasised the need for the vertical growth of the agricultural sector. Dr P Das, Director, NBFGR, Allahabad, reported on the basis of his researches his inventions about the fish farming and explained that there was vast scope for the development of fish production so that the income of the small and marginal farmers could be supplemented through fish farming.

Eminent scientists from Allahabad, Delhi, Aligarh, Jaipur, Bombay, Patna, Ludhiana, Karnal, Sagar, Jabalpur, etc. participated and presented their research findings in the technical sessions of the symposium through their papers and slides. Eminent scientists from the Indian Council of Agricultural Research, (ICAR), Indian Agriculture Research Institute, (IARI), New Delhi, Aligarh Muslim University, Sagar University, NBAGR, Karnal, NBFGR, Allahabad, participated in the symposium.

Sanitation Week

To acquaint the farm women with the time, labour and money saving technologies and also to educate them in health and sanitation aspects, the Family Resource Management Department of the Home Science College of Chaudhary Charan Singh Haryana Agricultural University (CCSHAU) organised a Sanitation Drive Week at Village Kaimeri recently.

According to the programme in-charge, Dr. (Mrs.) Savita Singal, the home science experts delivered lectures on environmental sanitation, personal hygiene, food hygiene, proper care and storage of grains, clothes and control of household pests and insects. Demonstrations were given on the construction of smokeless chullah, safe storage and use of drinking water and proper use of Janta water filter, solar cooker, etc. More than 500 women were benefited by the programme.

Dr. H.C. Sharma, Director Research, CCSHAU, gave prizes to the women who adopted the new techniques as per guidelines of the experts of the home science. Dr. A.S. Faroda, Director Extension Education advised the women to get maximum

benefit out of such programmes.

Dr. B.M. Chauhan, Dean, College of Home Sciences, highlighted the programmes adopted by the College for the betterment of farm women.

Sports News

Sports Sciences and Sports Performance

Highly competitive nature of sports, support of modern day sciences and the falling standards of sports are the driving forces to deliberate upon various dimensions of sports in the country. A Seminar under the aegis of Sports Sciences Research Foundation held at New Delhi recently highlighted the role of sports sciences in sports performance.

Speaking on the occasion, Secretary, Deptt. of Sports and Youth Affairs, and Director-General, Sports Authority of India, Mr B.N. Bhagwat, expressed concern regarding promotion of applied research and young researchers in the areas of sports sciences. Mr Bhagwat stressed that without the support of sports sciences it was rather difficult to make a world class sports person.

Prof. Mohd. Amin, former Chairman, Delhi University Sports Council, encouraged the parents to take the hardships of sports and advised the sports administrators to promote the potential and merit in selection of the teams.

In his presidential address, Shri Randhir Singh, Secretary General, Olympic Council of Asia and Indian Olympic Association, expressed his serious concern about mixing of politics and sports, nomination of managers and coaches as well as lack of scientific support to the elite athletes.

Sports Sciences Research Foundation having a committed membership of doctors, scientists, physical educationists, coaches, physiotherapists and outstanding sports persons, envisaged that ultimate concern of any society was excellent performance in sports and the celebrated sports persons.

To mark the modest beginning for a system approach, the Foundation conferred awards for 'distinguished services to the world of sports' on Ajit Pal Singh (Hockey), Bahadur Prasad (Athletics), Khajan Singh (Swimming), Limba Ram (Archery), Manjit Dua (Table Tennis), Pappu Yadav (Wrestling), Shiny Wilson (Athletics), Sunita Godara (Marathon), Dr Narottam Puri (Sports Broadcasting) and Dr. L.C. Gupta (Sports Medicine).

Dr. Jawahar Jain, President of the Foundation, stressed the need to educate athletes and coaches on their personal management including nutrition, drug abuse, injuries and rehabilitation, psychological preparation as to be socially elevated individuals.

Dr Kiran Sandhu, former international basketball player and Secretary of the Foundation, said that falling sports standard in the country was common placed, yet it was controversial to adopt any line of action. She stressed that sports today was no more a mere play but needed a

scientific enquiry and systematic analysis for better gains.

The keynote speaker, Dr M.S. Malhotra, Chairman, Sports Medicine Advisory Committee, Sports Authority of India, emphasised the role of balanced nutrition for sportsmen. Dr. A.K. Ghosh, Director, Sports Sciences, Sports Authority of India, stressed that status of a player could be best determined for undertaking training load through the measurement of physiological variables.

Dr P.K. Pande, noted sports medicine expert from LNCPE, Gwalior, elaborated that most of the sports injuries were preventable and he proposed educative measures for the athletes. Geoffery Herbert, Special Ambassador Olympics, attending to world class athletes and sports physiotherapist in Germany, presented a talk on personal preparation of sports physiotherapists. Dr. P.K. Prabhakar, Asstt. Professor, Institute of Physically Handicapped, Government of India stressed the need of immediate rehabilitation of sports injuries through physical modalities like Hydrotherapy, Diathermy, etc. A panel of experts comprising Dr Neena Bohra, Consultant & Head, Deptt. of Psychiatry, Ram Manohar Lohia Hospital, Dr Avdesh Sharma, Psychiatrist, Dr Sanjiv Sahni, Sports Psychologist, SAI, Sunita Godara, marathon athletes on sports psychology headed by Member Medical Commission., I.O.A., Dr Jawahar Jain highlighted the mental preparation as the winning force of the athletes in competitive sports. The serious threat posed by the use of drugs to enhance performance was discouraged by Dr Alka Beotra of Dope Control Centre, SAI. Dr Kiran Sandhu, speaking on women and sports, highlighted that besides specific training methods in line with physiological and physical make up, women in sports was more a social issue calling for the attention of social scientists.

The programmes of the Foundations were endorsed by Maj. O.P. Bhatia, Executive Director, Sports Authority of India. He also invited the scientists of the Foundation to come forward to help SAI to implement the sports programmes more effectively.

The delegates at the Seminar made the following recommendations :

- (a) The sports performer needs to be scientifically studied comprehensively;
- (b) Research and development effort for sports is of immense significance not only to improve the performance of few, but to promote the future development of 'sports for all';
- (c) An integrated, well organised and uniform approach to provide a scientific back-up to elite sports performers should be promoted;
- (d) Stress in the curriculum be laid on sports sciences through school, college and university physical education programmes;
- (e) Young researchers working in sports world be provided with more national and international exposure for better comparative understanding of applied research for sports performances;
- (f) A close co-ordination and liaison among coaches, physical educationists, sports doctors and scientists be accorded for providing proper scientific support to lay stronger foundation of sports in the country; and
- (g) Sports research promoting agencies should be commissioned by UGC, IOA and SAI

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto 15th April, 1993 for the following posts at the Council's Institutes/Centres :-

1. AT THE NATIONAL INSTITUTE OF VIROLOGY, PUNE

Deputy Director (Tissue Culture & Cell Biology) (One post)

(Scale of pay of Rs. 4500-150-5700)

Qualifications & Experience : Essential : MBBS or M.Sc. (1st class) in Microbiology/Life Sciences/Biochemistry with 12 years research/teaching experience in Tissue Culture/Cell Biology or M.D. or Ph.D. in the above fields with 10 years research/teaching experience as evidenced by publications of good quality.

Job Requirements : The incumbent will be required to undertake research in Cell Biology and Tissue Culture including Mass cultivation of cells, pilot plant production of vaccine, quality control, etc. He should be able to guide and formulate research programmes in the above fields. He should also be prepared to carry out field investigations on diseases anywhere in India for any period of time.

2. AT THE NATIONAL AIDS RESEARCH INSTITUTE, BHOSARI PUNE

Senior Research Officers (Two posts) (Scale of pay of Rs. 3000-100-3500-125-4500)

a) For Post No. I - S.R.O. (Psychology)

Qualifications & Experience : Essential : 1st class M.A. in Psychology with at least 6 years research/teaching experience in the field of Psychology. For those possessing Ph.D. 2 years experience in relevant field. Desirable : Working experience in the field of counselling and psychosocial assessment of the HIV infected persons.

Job Requirements : To provide pre and post-counselling and conduct psychosocial assessment of patients.

b) For Post No. II - S.R.O. (Clinical Medicine)

Qualifications & Experience : Essential : MBBS with 6 years (after completing the internship) research/teaching experience in treatment and management of patients with communicable diseases. For those possessing M.D. degree 2 years experience in relevant field

Desirable : Experience in clinical management of HIV infected persons including those with opportunistic infections. **Job Requirements :** To manage patients with compromised immune system, and treat opportunistic infections. Also to co-ordinate data collection, perform clinical examination, and patient care

Age : Below 50 years for the post of Deputy Director and below 45 years for the posts of Senior Research Officer. SC/ST candidates allowed relaxation in accordance with Govt. of India Rules. Candidate belonging to SC/ST communities will have to furnish certificates from prescribed authority in the required format printed at page 345 of the brochure on reservation of SC & ST in services which can be supplied on demand failing which they will not be entitled to the concession admissible to them, if any. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decisions of the Director General will be final. The number of vacancies to be filled may vary at the time of actual selection. In the event of non-availability of suitable candidates for advertised posts, the positions can be filled up at lower level. Allowances as per Central Government rules are admissible on the above pay scales. Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only. Candidates called for interview for the posts of Deputy Director will be paid 1st class rail fare and for the posts of Senior Research Officer will be paid 2nd class rail fare by shortest route, on production of documents. Applications from employees working in Central/State Govt. Deptt./Public Sector Undertaking and Govt. funded research agencies must be forwarded through proper channel. Application forms can be obtained from the office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029 with a crossed IPO for Rs. 8/- payable to the Director General, ICMR, New Delhi. SC/ST candidates are exempted from this payment. Incomplete and late application or without postal orders will not be entertained. The name of the post and of the Institute/Centre must be indicated in the Application Form. Separate application form should be submitted for each post with crossed IPO for Rs. 8/- and for each Institute/Centre.

A list of doctoral theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Sahoo, Bhaskar Chandra. The problem of other mind. Durgawati.
2. Sharma, Rajni. Samkalpen Bhartiya darshakon ke drishti mein Bhartiya sanskriti ka swaroop: Mahatma Gandhi, Shri Aurobindo, Dr Radhakrishnan ke vishesh sandarbh mein. Durgawati. Dr J P Shukla, Prof and Head, Department of Philosophy, Rani Durgawati Vishwavidyalaya, Jabalpur.

Fine Arts

Drawing & Painting

1. Aggarwal, Deepa. Shilpa Guru Kshatindranath Majumdar ke chitron ka Bengal School ke anya kalakaron ke sandarbh mein sameekshitmak adhyayan. Indira Kala. Dr S B Vakanakar
2. Chattopadhyay, Debdas. Rarh Banger utsarga silpa. Rabindra Bharati

Music

1. Chattopadhyay, Kalyan Kumar. An investigation into the inward psycho-temporal and psychological attributes of instrumental musicians. Rabindra Bharati.
2. Chaturvedi, Harshkumar. Bundeli lok sangeet ka shastriya adhyayan. Indira Kala. Shri Sharif Mohammad, Head, Department of Folk Music, Indira Kala Sangeet Vishwavidyalaya, Khairagarh.
3. Dewangan, Rudramani. Tulsī ke kavya mein sangitik tatva. Indira Kala. Shri Tulsiram Dewangan, Kamla Devi Sangeet Mahavidyalaya, Raipur.
4. Khanna, Nirmala. Pandit Bhatkhande Jee ka Hindustani shastriya sangeet mein bandishon ka yugdan. Indira Kala. Late Thakur Jaydev Singh and Prof P N Chinchore, 157, Shrinagar Colony, Indore
5. Parveen, Secma. Ghazal ke sangeet paksha ka vishleshtmak adhyayan. Vikram. Dr Pyarelal Shrimai, 'Saraspandit' Rangmahal, Naipeth, Ujjain
6. Sharma, Devaraj. Kangra anchal ke lok sangeet ka swarankon evam saidhanik vivechana. Indira Kala. Dr Gautam Sharma, "Vyathit" Raj Mandir Nareti, Kangra.

Language & Literature

English

1. Bhatnagar, Mita. Quest for identity in French Canadian fiction. Jamia. Prof M Waseem, Department of English, Jamia Millia Islamia, New Delhi
2. Bhatt, Priti. A thematic study of Asif Currimbhoy's plays. Barkatullah
3. Khurshid Imam. A study of contemporary Indian English literature: The case of Khwaja Ahmad Abbas. Jamia. Prof A A Siddiqui, Department of English, Jamia Millia Islamia, New Delhi.

4. Mann, Paramjit. His mind and craft and the complexity of symbolism: A study of Yeats' meditative verse. Jiwaji. Dr J R Deshmukh, Department of English, Govt P G College, Guna.

5. Nath, Rita. The postcolonial encounter: India in the British imagination. JNU. Prof Meenakshi Mukherjee, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

6. Raghu, A. Nissim Ezekiel's poetry: A study of themes and styles. Kerala. Dr (Mrs) K Radha, Prof and Head, Institute of English, University of Kerala, Thiruvananthapuram.

7. Rakheja, Rashmi. Hardy's poetry: A study in matter, meaning and mood. Barkatullah.

8. Rana, Sarwapal Singh. The poetry of John Ashbery upto 1984: A critical estimate. Vikram. Dr Achla Sharma, Prof, Department of English, Vikram University, Ujjain.

9. Ranyan, Neelima. Regionalism in Porter's short stories. Barkatullah.

10. Sharma, Guruaribam Ibopishak. A study of secular thought in the poetry of Alfred Lord Tennyson and Robert Browning. Manipur. Dr R C Singh, Lecturer, Oriental College, Imphal

11. Uppal, Shveta. Robert Browning as a poet of love. Barkatullah.

12. Verma, Daya Nand. Social protest in the five novels of Mulk Raj Anand. HP.

Sanskrit

1. Choubey, Sudhir Prasad. Brihadarnyakopnishad ka darshnik evam sanskritik adhyayan. Magadh
2. Dondyal, Madhu. Hindu smritikaron ke samajik utkarshmulak pramukh siddhant. Garhwal. Dr Shvram Mourya
3. Jain, Mani Prabha. Acharya Kund Kund ka tatvik chintan: Pramukh Upanishadon ke sandarbh mein tulnatmak adhyayan. Durgawati. Dr V P Jain, Prof, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur
4. Joshi, Manohar Prasad. Sanskrit vanganmaya evam Garhwal manyaton mein Yaksh: Ek tulnatmak adhyayan. Garhwal. Dr P Dobhal.
5. Jugaran, Indira. Madhya Himalaya ke Sanskrit abhilekhon ka vivechanatmak adhyayan. Garhwal. Dr R P Tiwari.
6. Katar, Neera. Sanskrit mahakavyon mein nirupit prem tatva: Ek vivechanatmak adhyayan. Garhwal. Dr G S Trivedi.
7. Mishra, Kailash Chandra. Shri Harshbhajyotulnatmak adhyayan. Jagannath. Dr Harekrishna Satpathy, Reader, Department of Sanskrit, Shri Jagannath Sanskrit Vishwavidyalaya, Puri.
8. Mishra, Manoj. Pramukh Puranon mein nari chitran. Bundelkhand. Dr Ramavtar Tripathi, JLN College, Banda.

9. Mishra, Ram Narayana. Puranon mein ulikhit vyakaran shastriya samagri ka sameekshatmak adhyayan. Ghasidas. Dr K P Pandey, C M Dubey Postgraduate College, Bilaspur

10. Mohapatra, Dibakar. Ashwameghayagya sameeksha Jagannath. Pt Somaasath Dash, Deputy Director, Research Project, Shri Jagannath Sanskrit Vishwavidyalaya, Puri.

11. Paliwal, Shrikrahan. Kavyabriti mein huye prakriti chitran ka sameekshatmak adhyayan. Durgawati. Dr K K Chaturvedi, Prof and Head, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur.

12. Pitambar Dass. A critical study of Sanskrit kavyas of Duggar, 1901-1988. Jammu. Dr (Mrs) Ved Ghai, Prof, Department of Sanskrit, University of Jammu, Jammu.

13. Pundir, Deveshwari. Vartman jeevan mein Smriti sahitya ke upayogita. Garhwal. Dr R P Tiwari.

14. Radha, B. A critical study of Ganasyama's commentary on the Sakuntalam. Bharathidasan Dr G Sundaramoorthy, 40, 'S mercu' 2d St, Ram Nagar, S S Colony, Madurai

15. Rawat, Punia. Sanskrit gadya sahitya mein nari chitran. Garhwal Dr R P Tiwari

16. Sarangi, Durga Chetan. Karka parkarne shabdhivibhaktiyarth vimarsh. Jagannath Dr Kishore Chandra Padhi, Reader, Department of Vyakaran, Shri Jagannath Sanskrit Vishwavidyalaya, Puri

17. Saroj Bala. Murarikrit Anarghraghav tatha Jaldevkrit Prasannraghav ka tulnatmak adhyayan. Garhwal Dr R P Tiwari.

18. Singh, Annu. Dr Rewa Prasad Dwivedi krit Kavyalankar Karika ka sameekshatmak adhyayan. Durgawati Dr R B Dwivedi, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur

19. Sushma Devi. Bharatkrit natyashastra mein uplabdh nrityaparak samagri ka adhyayan. Jammu Dr (Mrs) Ved Ghai, Prof, Department of Sanskrit, University of Jammu, Jammu.

Pali

1. Shriv Shankar Bodh, Jain evam Yoga darshan mein Panchsheel: Swaroop vishleshan. Magadh

Hindi

4. Anwar, Sayeeda. Sufisani Rangila: Vyaktitva aur krititva. Osmania

2. Badoni, Mitranand Hindi natya shilpa. Garhwal Dr Gopinath Tiwan

3. Baranhas, Manjula. Hindi ke mahila upanyaskaron ke sandarbh mein Mannu Bhandari ke upanyas sahitya ka adhyayan. H S Gour Dr (Smt) Prabhawati Singh, Department of Hindi, Govt Postgraduate College, Damoh.

4. Benu Bala Nirala-kavya mein prakriti ka upyog. Delhi

5. Chamoli, Kusumlata. Samkalen yug Bangha aur Dr Shyam Singh Shashi ka sahitya. Garhwal. Dr Mridula Jugran

6. Debhikar, Atmaram Narayan. Devesh Thakur, vyaktitva aur krititva: Ek anusheelan. Nagpur Dr Ramgopal Soni, Vidyapeeth Teaching College, Nagpur.

7. Dube, Rama. Swatantrayottar permukh mahila kahanikaron ke kahaniyon mein nari patron ka swaroop. Bartatallah.

8. Dwivedi, Dinesh Kumar Hindi sahitya mein Gautam Buddh aur unke chintan ke abhivyakti. Bundelkhand. Dr D P Srivastava, D V College, Oras

9. Gehani, Dinesh Jethanand Premchand ke upanyason mein sanskritik aur samajik sangharsh chetna: Anusheelan. Nagpur. Dr (Miss) Usha Shajapurkar, Department of Hindi, R S Bidkar College, Hinganaghat.

10. Jain, Kiran. Jain darshan ke sandarbh mein Muni Vidyasagar Jee ke sahitya ka anusheelan. H S Gour. Dr Suresh Acharya, Department of Hindi, Dr Harisingh Gour Vishwavidyalaya, Sagar.

11. Kamaljeet Kaur. Sathottar Hindi kahani yugeen sandarbh. Ghasidas. Dr Jagmohan Mishra, Link Road, Bilaspur.

12. Mall Reddy, B Swatantrayottar Hindi aur Telugu kavita mein samajik kranti, 1947 to 1990. Osmania.

13. Mishra, Omprakash Mathuraprasad Madhyayugeen bhakti andolan evam Ram kavya ke chetna: Adhunik paripekshya mein punramulayakan. Nagpur. Dr Ramgopal Soni, Nagpur Vidyapeeth Teaching College, Nagpur.

14. Napit, Surya Prakash. Dharamvir Bharati ke sahitya mein adhunik bodh ke ayan. Rajasthan. Dr H C Sharma, Abhishek, 1/1304, Malviya Nagar, Jaipur.

15. Nema, Meera Mandakini Kamakeshwar ke katha sahitya ka sameekshatmak adhyayan. Durgawati. Dr (Smt) S Dubey, Department of Hindi, Rani Durgawati Vishwavidyalaya, Jabalpur

16. Patang, Shrivsingh Adhunik Hindi kavita mein Madhya Pradesh ke kaviyon ka yogdan. Vikram. Dr Chandrakant Devatale, Principal, Govt College, Nagda

17. Poddar, Shashi Adhunik Hindi kahaniyon ka samaj shastriya adhyayan. Calcutta

18. Sharma, Anjali Hindi laghu katha: Laghu katha evam vikas. Ghasidas Dr Vinay Pathak

19. Sharma, Anuja Prayogvadi sameeksha paddhiti ke paripekshya mein Gajanan Madhav Muktilbodh (Hindi) aur Pra Da L Kulkarni (Marathi) ke sameeksha karya ka tulnatmak adhyayan. Nagpur Dr Ghanshyam Vyas, Department of Hindi, Nagpur University, Nagpur.

20. Sharma, Chandra Pal Mithak ke abhivyakti ka vivechan: Chhayavadi karya ke sandarbh mein. Jamia Dr (Mrs) Phool Manchanda, Lecturer, Department of Hindi, Jamia Milia Islamia, New Delhi.

21. Sharma, Kalpana Sur ka leela kavya. Jiwaji. Dr K M Sharma, Prof, Department of Hindi, Govt P G College, Morena.

22. Sharma, Kusum Kavi Rajesh Dyalu Rajesh: Vyaktitva aur krititva. HP.

23. Sharma, Sulekh Chandra. Hindi-Urdu alochana ka tulnatmak adhyayan. Delhi.

24. Sikarwar, Suresh Singh. Bharat mein Islam ke sanskritik prabhav mein madhyakalin bhakti kavya ke bhumika. Jiwa. Dr Jadupati Singh, Laxmiganj, Lucknow, Gwalior.

25. Singh, Sangeeta Navgeet ka samagra anusheelan. Ghasidas. Dr Shyam Sunder Dubey, Head, Department of Hindi, Govt Postgraduate College, Hata, Damoh.

26. Tejani, Alpa. Swatantrayottar Hindi kahani lekhanayon ke rachnaon mein samaj chetna. Ghasidas. Dr R D Saxena, Govt Arts and Commerce College, Bileaspur.

27. Tripathi, Vinod Kumar. Anand Ramayana evam Ramcharit Manas ka talnatmak adhyayan. Bundelkhand. Dr V D Awasthi, Atarra Postgraduate College, Atarra

28. Unyal, Jayanand Tihari Jile ke boli ka adhyayan. Garhwal. Dr N K Sharma.

29. Vaswani, Sushila Hanram. Amritlal Nagar ke upanyasoon ka samajshastriya vishleshan. Nagpur. Dr Durgashankar Mishra, Naik Road, Mahal, Nagpur

Urdu

1. Mohd Ramzan. Trends in post independence Urdu criticism. Jammu. Dr Zahur-ud-Din, Reader, Department of Urdu, University of Jammu, Jammu

2. Parwin, Hashmat. Life and works of Mohammad Abdur Rahman Bismil Sunsharwi. Calcutta

3. Quraishi, Azhan Khanam. The trend of national integration in Urdu poetry after independence. Nagpur. Dr M R Khan, 11, Starky Town, Mangal Bazar, Nagpur

4. Syed Abbas. Urdu adab mein Tanzeo Mizah ka samaji O tehziibi pasmanzer. Osmania

5. Zafar Iqbal. Urdu language, literature and education in Bidar District after independence, 1947 to 1987. Gulbarga. Dr B N Quraishi Rahi, Reader, Department of Urdu, Gulbarga University, Gulbarga

Bengali

1. Chakrabarti, Chandana. Dul mahajuddher madhyabarti Rabindranather chotto galpa. Calcutta

Oriya

1. Misra, Sankar. Gopinatha Mohantyka upanyasare charitra srustil. Berhampur. Prof Basudeva Sahu, Department of Oriya, Utkal University, Vanu Vihar, Bhubaneswar.

2. Satapathy, Santosh Kumar. Performing art tradition of Ganjam: A study. Berhampur. Dr Sudarsana Acharya, Prof, Department of Oriya, Berhampur University, Berhampur and Dr L N Rout, Reader, Department of History, Berhampur University, Berhampur.

Marathi

1. Amrite. Sandhya Vinay. Mahesh Elkunchvar yanche natyavangmaya ek chikitsak abhyas: Astitvavadi janiva va pap-sankalpna yanche vishesh sandarbhshah. Nagpur. Dr D V Kulkarni, Department of Marathi, Nagpur University, Nagpur.

2. Kelapure, Kunda Gangadhar. Chi V Joshe yanche kathasahitya chikitsak abhyas. Nagpur. Dr Vasant Krishan Bahadpandey, Head (Retd), Department of Marathi, Hinkop College, Nagpur.

3. Pandit, Ravikiran Vasantrao. Nathamadhav yanchya samagra sahityacha abhyas. Nagpur. Dr V N Prebhudessi, Prof, Department of Marathi, Nagpur University, Nagpur.

Arabic

1. Abul Hasanat. The contribution of Darul Uloom Nandwatul Ulama to Arabic literature. Jamia. Dr Zubair Ahmad Faruqi, Reader, Department of Arabic, Jamia Millia Islamia, New Delhi.

Tamil

1. Kalaiventhan, M. Thiru VI Ka Padalippugal Kattam vashkai nerl. Bharathidasan. Dr K Ramayyan, Postal Colony, Manjukkottai Road, Thanjavur.

2. Rangarajan, A. Naalayira Dhivya Prabandalilil Aruliyal, Thirumizhhalol Aazhvar. Bharathidasan. Dr N Rajagopalan, D-55, 6th Cross, Thillainagar.

Telugu

1. Girilakshmi, K. The lives and teachings of Ahwara in Telugu poetry. Osmania.

2. Mohammad Mehboob Ali. Adunika kavi thram: Vasthuvu, roopa parinamam. Osmania.

3. Narasamamba, K V S L. Turpu Godavari Zilla Muslim streets konni monkhika akhyanalur. Oka pariseelana. Telugu

4. Ram Babu, R. Krishna bhakti in Viswanatha's poetry. Telugu.

5. Ramanujacharyulu, Ch. Telugulo thiruvaymozhi. Osmania

6. Subba Chary, P. Janapada Vijnanamlo Asritasahityam. Osmania.

Geography

1. Chauhan, Ranveer Singh. Hamirpur Tehsil (UP) mein bhumi upyog: Poshana star evam manav swasthya. Bundelkhand. Dr R S Tripathi, Atarra Postgraduate College, Atarra.

2. Channa. Shrimad Bhagwat Puran ka bhugolk vivechan. Bundelkhand. Dr R L Tripathi, Atarra Postgraduate College, Atarra.

3. Hamdani, Syed Karamat Hassan. Land use, availability of nutrition and deficiency diseases in the Anantnag District, J & Kashmir. Jamia. Dr S Sajid Hussain, Reader, Department of Geography, Jamia Millia Islamia, New Delhi.

4. Khan, Alimul Haque. The impact of new agricultural technology on the socio-economic life of the Taras: A tribal community of UP. Jamia. Prof Qazi Mohammad, Department of Geography, Jamia Millia Islamia, New Delhi.

5. Kishori Lal. Himachal Pradesh: A study in multilevel regional planning. Garhwal. Dr Har Prasad.

6. Maiti, Gopal Chandra. Landform development and its impact on land use patterns of the middle Mahanadi Basin, Orissa. Calcutta.
7. Mitra, Nita. The role of urban centre in the development of regional economy of North Bengal. NBU
8. Mukhopadhyay, Subhash Chandra. The Tista Basin: A study in fluvial geomorphology. Calcutta
9. Naithani, Bhanu Prasad. Terrain evaluation in relation to resource utilization and environmental management. Garhwal, Dr Devidutt.
10. Narayan Reddy, K. Urban redevelopment: A study of high-rise buildings in Hyderabad City. Osmania
11. Narula, Har Krishan Kumar. Fertility patterns of population in the Union Territory of Delhi. Jamia. Dr M Abuzar, Reader, Department of Geography, Jamia Millia Islamia, New Delhi.
12. Parmatma Singh. Mandakini Basin : A study in morphometric analysis land forms. Garhwal. Prof O P Singh
13. Prem Lal. Garhwal mein gramini sadakon ka vikasatmak mulayankan. Garhwal. Dr Kamlesh Kumar
14. Rakesh Bhushan. Necessity and possibilities of social forestry and economic development in Western Tehri Garhwal Region. Garhwal. Dr D D Maithani
15. Sad, Aboo. Resource pattern and integrated rural area development of Bijnore Tehsil. Garhwal. Prof O P Singh
16. Sati, V P. Horticultural development in Alaknanda Basin. Garhwal. Dr Kamlesh Kumar
17. Satish Chandra. Investment pattern of General Insurance Corporation in India. Garhwal. Dr S K Srivastava
18. Satya Ratan. Urbanisation in Himachal Pradesh: A geographical appraisal. Garhwal. Dr S C Singh
19. Shadhai Singh. Scope of social forestry in Nayar Basin. Garhwal. Dr P C Naithani
20. Verma, Rakesh. Consumer's movement in India. Garhwal. Dr A K Dass
21. Verma, Sadhana. Tehsil Ambaha (Morena, M P) ka gramini krishkon ke jeevan ke gunvatta: Kshetriya vikas ka vyasthiparak bhaugolik adhyayan. Jiwaji. Dr B V Singh, Dean, College Development Council, Jiwaji University, Gwalior
- History
 1. Bakshi, Veena. Motifs and designs on the painted pottery of chalcolithic cultures of Central India and Deccan. Durgawati. Dr R K Sharma, Visiting Prof, Department of Ancient Indian History, Culture and Archaeology, Dr Hari Singh Gour Vishwavidyalaya, Sagar
 2. Chakravarti, R. Japan mein Boddh sampradayan ke darshanik siddhant tatha pratimayen tatha Bharat aur kuchh anye Boddh deshon se unki tulana. Garhwal
 3. Dey, Ruchira. A study of the administration of the central provinces, 1861-1903. Barkatullah.
 4. Goutam, Raj Kumar. Jahagirnana ka itihastik adhyayan. Durgawati. Dr Rajiv Dueby, Department of History, Rani Durgawati Vishwavidyalaya, Jabalpur
 5. Hasan, Syed Bashir. Malwa under the Mughals, 1562-1707. AMU. Prof M Zameeruddin Siddiqui, Department of History, Aligarh Muslim University, Aligarh.
 6. Hassan Imam. National movement in Bihar: Khilafat to civil disobedience, 1919-31. AMU. Prof Zameeruddin Siddiqui, Department of History, Aligarh Muslim University, Aligarh.
 7. Khan, Sumbul Halim. Relations of Amber, Jaipur State with Mughal Court, 1694-1744. AMU. Prof Satish Chandra
 8. Lokendra, M. Social change in Manipur, 1891-1972. Manipur. Prof Gangmumei Kabui, Department of History, Manipur University, Imphal
 9. Mukhopadhyay, Uma. Socio-cultural life in Ancient Bengal as depicted in terracottas from earliest times to twelfth century A.D. Calcutta
 10. Sharma, Rama. Municipal Government and administration in Jammu City from 1884 to 1987. Jammu. Dr S D S Charak, Lecturer, Department of History, University of Jammu, Jammu
 11. Tiwari, Seema. Madhya Prant aur Berar mein Bharat Chhodo Andolan ka ek adhyayan. Durgawati
 12. Venkateshwar Rao, M. District associations and their contribution to the socio-economic and political development of Andhra, 1892-1920. Osmania

RANI DURGAWATI VISHWAVIDYALAYA JABALPUR

No. Estt./93/755

Dated : 11-3-1993

NOTIFICATION

The last date for receipt of applications for various teaching posts for M.B.A. Course as notified vide Advertisement No : Estt./93/699, dated 5-2-1993 is hereby extended upto 6th April, 1993.

B.K. Mishra
REGISTRAR

**D.M.V.N.S. BANDEKAR
COLLEGE OF COMMERCE**

**POST BOX NO. 20
MAPUSA, GOA**

WANTED LECTURERS FOR 93-94

Applications are invited for the post of.

1. Lecturer in statistics - PT - One post
2. Lecturer in Computer systems - FT - One post
3. Lecturer in Business Law - P.T. - One post
4. Lecturer in Com. Geography - P.T. - Lecture basis

The posts at Sl. No. 1, 2, and 3 are advertised for the first time and are reserved for SC/ST candidates only. If suitable candidate from reserved category is not available, then these posts will be filled in by candidates from general category, on temporary basis.

5. Lecturer in Economics - FT - One post
6. Lecturer in History - FT - (to teach FC I) - One post
7. Lecturer in English - FT - One post

These posts at Sl. No. 5 to 7 are advertised for the second time and only SC/ST candidates need apply for the same. No Candidates from general category will be considered for these posts. If suitable candidate from reserved category is not found then the present candidates in the posts will be continued.

Qualifications & Pay Scales :

As prescribed by the Goa University (Lecturer in B Law must possess P.G. Degree). The candidate must have passed eligibility test conducted by UGC. In case candidates having passed eligibility test are not available then candidates selected will be appointed on temporary basis till they pass the said test.

Persons who are already employed shall send their applications through proper channel. Break in service if any should be accounted for.

The qualified suitable candidates may apply giving full details with true copies of marklists. Applicants from reserved category should attach true copy of the caste certificate.

Applications complete in all respects should reach the Principal within fifteen days from the date of publication of this advertisement.

**G.G. Mayekar
PRINCIPAL**

**INDIAN INSTITUTE OF
TECHNOLOGY
KHARAGPUR**

Advertisement No. R/2/93

Applications are invited for the following positions, the details of which are given below:

1. **Professor** (Rs. 5100-150-5700-200-7300/-)
Ph.D. with first class academic record throughout and 10 years' teaching/research/industrial experience of which at least 5 years' should be at the level of Assistant Professor/Associate Professor.

2. **Associate Professor** (Rs. 4500-150-5700-200-6300/-)

Ph.D. with first class academic record throughout and 8 years' teaching/research/industrial experience of which at least 3 years' should be at the level of Assistant Professor.

3. **Assistant Professor** (Rs. 3700-125-4950-150-5700/-)

Ph.D. with first class academic record throughout and 3 years' teaching/research/industrial experience.

4. **Visiting Lecturer** (Rs. 3000-100-3500-125-5000/-)

Ph.D. with first class academic record throughout.

**Jai Narain Vyas University, Jodhpur
(Establishment Branch)**

No. JNVU/Estt/92-93/2124

March 3, 1993

Advertisement No. 156/92-93

Applications are invited on the prescribed form obtainable from the Office of the Registrar, Jai Narain Vyas University, Jodhpur on payment of Rs. 10/- either in cash or through crossed Indian Postal Order payable in favour of Registrar, Jai Narain Vyas University, Jodhpur alongwith self addressed envelope of 27x12 cms. size affixing postal stamp of Rs. 8/- for the following posts so as to reach the undersigned on or before 5-4-1993 upto 4 00 p.m. **APPLICATIONS RECEIVED AFTER DUE DATE SHALL NOT BE ENTERTAINED.**

S No	Name of Post	No of Posts	Category			Pay Scale
			Gen	SC	ST	
(1)	Controller of Examination	1	1	-	-	3200-100-3500-125-4625
(2)	Printer Grade (B)	1	-	1	-	950-20-1150-25-1400-30-1640-40-1680
(3)	Binder Grade (B)	2	-	1	1	800-15-950-20-1250
(4)	Proof Reader	1	1	-	-	1200-30-1560-40-2000-50-2050

Note :

- (1) Details of Qualifications alongwith General Conditions, etc will be supplied to candidates alongwith application forms.
- (2) The University reserves the right to increase or decrease the number of posts. The University also reserves the right not to fill any or all posts if deemed necessary.

**Doongar Dan
REGISTRAR**

The above posts carry allowances as per Institute rules.

Departments/Centres and Specialisations :

Aerospace Engg.
Aerospace Structure, Control & Guidance, Aerodynamics.

Agricultural Engg.
Agricultural Engineering, Applied Botany, Agronomy and Soil Sciences

Architecture & Regional Planning
Construction & Management, Visual Arts & Graphic Communication, Industrial Design.

Chemical Engg.
Petroleum Refinery Engineering & Petro-chemicals, Thermodynamics, Transport Processes, Pollution Abatement and Control

Chemistry
Synthetic Inorganic/organic Chemistry, Biological Chemistry, Chemical Thermodynamics and Electro-chemistry.

Civil Engineering
Structural Engineering, Soil Mechanics and Foundation Engineering, Highway (Transportation Engg), Water Resources Engineering, Environmental Engineering.

Computer Science & Engineering
Computer Networks, Parallel & Distributed Systems, DBMS, AI, Computer Vision, Theoretical Computer Science, Software Engineering, VLSI Systems

Electrical Engg.
Electrical Machines, Power Electronics, Instrumentation, Energy Engineering.

Electronics And Electrical Communication Engg.
Automation, Computer Vision, Communications, Computer Engineering, Fibre Optics, Microelectronics, VLSI CAD, Microwave and Signal Processing.

Geology & Geophysics
Geochemistry, Petrology, Structural & Sedimentary Geology, Stratigraphy Palaeontology, Economic Geology, Remote Sensing, Exploration Geophysics

Humanities and Social Sciences
Psychology, Economics, English, Sociology, German, Hindi

Industrial Engg. & Management
Ergonomics, Quality and Reliability Engineering, Manufacturing Management, Marketing Management, Business Policy.

Mathematics
Algebra, Analysis and Geometry, Computer Science, Statistics and Operations Research, CFD, Elasticity and Cosmology

Mechanical Engg.
Theory of Elasticity, CAD/CAM, Robotics, Manufacturing Processes, Fluid Mechanics, Bulk Solid Handling.

Metallurgical Engg.
Extractive/Mechanical/Powder/Physical/ Foundry Metallurgy, Corrosion Science & Technology

Mining Engg.
Mine systems, Underground Coal Mining Methods.

Naval Architecture

Ship Design, Production, Structures and Hydrodynamics.

Physics and Meteorology

Condensed Matter Physics, Optics and Spectroscopy, Nuclear/Particle Physics, Atmospheric Science and Technology.

Cryogenic Engg.

Cryogenic Heat Transfer, Mass Transfer, Superconductivity, Cryo-Preservation.

Materials Science

Development and Processing of Ceramics, Composites, Polymers, Semiconductors and Allied materials.

Rubber Technology

Rubber Product Designs & Engineering, Rubber Processing and Characterisation, Rubber-Plastic Blends

Rural Development

Transfer of Technology, Rural Development Planning.

The qualifications and experience prescribed above are only the minimum and mere possession of the same does not entitle a candidate to be called for interview. The authority may also consider an applicant for

a lower post other than the one applied for. Candidates with distinguished industrial/Professional experience may be considered without a Ph.D. degree.

Candidates may send application(s) on plain paper with bio-data detailing date of birth, educational qualifications, with marks/grades and year of passing, work experience, present salary, list of publications, names & addresses of three referees and a recent photograph

A crossed demand draft for Rs. 50/- towards application fee (non-refundable) drawn in favour of IIT, Kharagpur payable at State Bank of India, Kharagpur-721302 should be sent so as to reach the undersigned on or before 24.4.93. SC/ST candidates are exempt from payment of application fee. Attested copies of certificates will be asked only from candidates called for interview

S. Chander
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

(Adv. No. 13/92, I.C.M.R. Hqs.).

Applications are invited upto 15th April'93 for the post of Sr. Research Officer (Ophthalmology) in the scale of pay of Rs. 3000-100-3500-125-4500 plus usual allowances as admissible in the Hqs. Office of the Council

Qualifications and Experience : Essential : a) M B B S b) Six years research/teaching experience (two years only for those with a M D or M S qualification) in Ophthalmology/Preventive and Social Medicine. Desirable : M D /M S in Ophthalmology. **Job Description :** Incumbent will be responsible for conducting and monitoring research projects related to Ophthalmology. The functions involve planning, monitoring and implementation of multicentric studies alongwith research management of various studies related to Ophthalmology. Other duties include review of national programmes, publications, reports and research projects

Age : Below 45 years

SC/ST candidates allowed relaxation in accordance with Govt. of India rules. Candidate belonging to SC/ST communities will have to furnish certificates from prescribed authority in the required format printed at page 345 of the brochure on reservation of SC/ST in service which can be supplied on demand failing which they will not be entitled to the concession admissible to them, if any. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decisions of the Director General will be final. The number of vacancies to be filled may vary at the time of actual selection. In the event of non-availability of suitable candidates for advertised post, the positions can be filled up at lower level. Allowances as per Central Government rules are admissible on the above pay scales. Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of Council is admissible to medical graduates only. Candidates called for interview will be paid 2nd class rail fare by the shortest route, on production of documents. Applications from employees working in Central/State Govt. Deptt./Public Sector Undertaking and Govt. funded research agencies must be forwarded through proper channel. Application forms can be obtained from the office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029 with a crossed IPO for Rs. 8/- being application fee payable to the Director General, ICMR, New Delhi. SC/ST candidates are exempted from this payment. Incomplete and late application or application without fee will not be entertained.

UNIVERSITY OF POONA

Advertisement No. 12

Applications are invited for various teaching posts as under :

Sr No	Department	Posts Open/Reserved for	Subject/specialisations
1	2	3	4
PART-A – PERMANENT POSTS			
PROFESSORS (11)			
1	Chemistry	ST**	Inorganic Chemistry
2	Physics	SC	Accelerator and Nuclear Physics Atmospheric Space & Plasma Physics/Material Science & condensed matter/Microwaves.
3	Physics	Open	Accelerator and Nuclear Physics/Material Science & condensed Matter/Biophysics Non-linear Phenomena and Lasers.
4	Zoology	ST**	Entomology
5	Zoology (Biotechnology)	SC	Biochemical Engineering
6	Zoology (Biotechnology)	SC	Biochemistry of Macro-Molecules/Molecular Biology
7	Geography	ST	Economic Geography/Settlement Geography
8	Geography	SC**	Geomorphology
9	Centre of Advanced Study in Sanskrit	SC**	Veda and/or Vyakarana
10	History	SC	Medieval or Modern Indian History
11	Library & Information Science (Librarian & Professor)	Open	
READERS (10)			
12	Zoology	ST**	Development Biology
13	Geography	ST**	Climatology
14	Mathematics	ST**	Algebra/Analysis/Topology/Applied Mathematics
15	Geology	Open	Geochemistry/Exploration Geophysics
16	Sanskrit & Prakrit Languages	ST	Veda/Vyakarana/Vedanta/Sahitya
17	(Centre of Advanced Study in Sanskrit)	Open	Indian Philosophy or Rhetorics
18	Foreign Languages	ST**	French
19	Law	ST**	Commercial/Industrial/Labour/Constitutional and Administrative Laws/Criminal Laws/Personal Laws/Indian & English Legal History
20	Law	Open	Taxation Law
21	Communication Studies	DTNT	Mass Communication
LECTURERS (8)			
22	Chemistry	SC**	Physical Chemistry
23	Microbiology	SC@	Molecular Biology/Applied Microbiology
24	Zoology	ST*	Biophysics or Genetics
25	Mathematics	SI**@	Applied Mathematics/Geometry/Differential Equations Numerical Analysis/Algebra Preference will be given to candidates with Computer experience
26	Statistics	Open	Statistical Inference or Probability or Stochastic Processes
27	Geology	ST**	Economic Geology & Mineralogy
28	Hindi	DTNT	Drama & Dramaturgy
29	Lalit Kala Kendra	Open	Music/Dance/Dramatics

NON PERMANENT POSTS

PROFESSORS (7)

30	Physics	Open	Atmospheric Space and Plasma Physics/Material Science and condensed Matter/Biophysics/Non Linear Phenomena and Lasers.
31	Politics & Public Administration	DTNT**	Political Thought in Maharashtra Regional Area.
32	Academic Staff College (Director)	Open	Social Sciences/Humanities/Commerce/Science
33.	Continuing Adult Population Education & Extension Work (Director)	Open	Adult/Continuing/Community/Extension Education/Community Development
34	Commerce and Management Science (Co-operation and Rural Development) (Padmashree Vikhe Patil Chair) (Consolidated Salary)	Open	Commerce/Economics/Co-operation Management/Co-operative Banking and Finance
35	Economics	Open	Monetary Economics/Agro-Industrial Economics/Economic Theory
36	Interdisciplinary School of Health Sciences.	Open	Medical Anthropology, Community Health, Biometry, Biochemistry, P.S M

READERS (3)

37	Physics	ST**	Atmospheric Science
38.	Interdisciplinary School of Health Sciences	Open	Biostatistics/Biochemistry/Physiology, Clinical Nutrition
39	Instrumentation Science	Open	Process Control Instrumentation/Power Instrumentation

LECTURERS (6)

40	Statistics	Open	Probability/Mathematical Statistics/Applied Statistics/Biostatistics
41	Computer Science (B Sc. applied)	Open	B Tech /M Tech in Computer Science or equivalent degree
42	Politics and Public Administration	Open	Politics & Public Administration
43	Continuing Adult Population Education and Extension work (Project Officer P.E.R.C)	Open	Adult/Continuing/Community/Community Extension Education/Development/Population Education.
44	Commerce and Management Science (MBA)	SC	Commerce/Management
45	Interdisciplinary School of Health Sciences	Open	Life Sciences/Community Health PSM, Physiology, Biochemistry

Pay Scales

Professor = Rs. 4500-7300 Reader = 3700-5700 Lecturer = 2200-4000

** Indicates reserved only for the candidates belonging to SC/ST/DTNT as mentioned against the post, hence applications of such candidates will only be considered.

@ Indicates, the post is temporary but likely to be made permanent

General Qualifications & Experience :

Professor : An eminent scholar with published work of high quality actively engaged in research with 10 years' experience is postgraduate teaching and/or research at the University/National Level institutions, including experience or guiding research of doctoral level

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge

Reader : Good academic record with a doctoral degree or equivalent published work. Candidates from outside the University system in addition shall also possess atleast 55% marks or an equivalent grade at the Master's degree level. Eight years experience of teaching and/or research including upto 3 years for research degrees and has made some work in the areas of scholarship as evidenced by quality of publications, contribution to educational renovation, design of new courses and curricula.

Lecturer : Good academic record with atleast 55% marks or an equivalent grade at Master's degree level in the relevant subject from an Indian University or an equivalent degree from a Foreign University

Instructions :

Candidates besides fulfilling the above qualifications should have cleared the eligibility test for Lecturers conducted by UGC, CSIR or similar test accredited by the UGC

Candidates who wish to be considered for more than one post must make separate applications for each of the posts

The candidates belonging to open categories who fulfil the conditions of qualifications, experience, etc may send their applications for the post reserved for candidates belonging to SC/ST/DTNT. Their applications will be considered if the suitable candidates are not available from the particular category of the Backward Class

Candidates are requested to send the applications in the prescribed form in two copies, so as to reach the University office on or before 30th April, 1993. Sets containing application forms with two copies are available in Publication Section of the University at the cost of Rs 25/- Application form will be sent if self-addressed envelopes (23 cms x 20 cms) with stamp of Rs. 7/- and postal order of Rs. 25/- is sent to the Registrar University of Poona, Ganeshkhind, Pune - 411007

Notes :

- 1 Candidates belonging to reserved category must produce a caste certificate to that effect from the Magistrate specifying clearly the name of community to which he/she belongs and he/she will be considered only if his/her caste is enlisted in the approved list of Maharashtra Government.
 - 2 One who is already employed must submit his/her application through proper channel.
 - 3 Some of the conditions may be relaxed in case of exceptionally capable candidates
 - 4 No applications will be entertained received after last date and incomplete form will not be entertained
 - 5 The University will not be responsible for postal delay if any.
 - 6 The appointment of selected candidates will be made subject to the condition that he/she may have to work at Pune or any place under the jurisdiction of the Poona University
- The details regarding specialisations and special qualifications and other requirements for each post will be available alongwith the application form

Dr. M.D. Nalawade
REGISTRAR

**Kuriakose Elias College,
Mannanam**

W A N T E D

Lecturer in Commerce - T.F.S - Leave vacancy - Community Quota The post is subject to sanction by Mahatma Gandhi University, Kottayam and review under the U G C. scheme **Qualification :** 1st or 2nd class Master's Degree in the concerned subject with not less than 55% marks and a pass in the UGC eligibility test **Age :** According to Government service and University Regulations. Apply to the Principal within one month from the date of publication of this notification Application form and other details can be had from the college office on payment of Rs. 50/- in person or Rs 60/- by post.

Mannanam

**Principal
Date : 10.3.93**



**SCHOOL OF MANAGEMENT
INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR**

A School of Management has been set up at IIT, Kharagpur with the financial support from Mr Vinod Gupta, an alumnus of the Institute, and from the Government of India Besides conducting Executive Development Programmes and carrying out Industrial Consultancy work, the School will be offering an 18 month Master of Business Management (MBM) Programme with effect from July 1993

Faculty Appointments : The School invites faculty in the areas of Accounting and Finance, Marketing, Human Resources Management, International Management, Business Policy, Labour legislation and Computer and Systems Management The faculty will be appointed on a contract basis at the level depending on the academic background and attainment of the applicant A Ph D degree in the specialisation is required This requirement may be waived for applicants with rich practical experience Retired personnel from industry and educational institutes will also be considered Applications with full particulars, along with a demand draft of Rs 50 drawn on SBI in favour of IIT, Kharagpur may be sent to the Director IIT, Kharagpur 721 302, before April 30, 1993

Admissions : Practising managers from industry with a minimum of two years of experience will be admitted to this programme on the basis of their academic record, and performance in an interview to be conducted at IIT, Kharagpur Candidates applying should be sponsored by their organisations and must have a Bachelor's Degree in any branch of Engineering Senior managers/executives with a Post Graduate degree in Science/Arts will also be considered Those admitted under this category are expected to be financially self supporting or get assistance from their sponsoring organisations For further details write to "The Coordinator, School of Management, Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur 721 302 India" before April 30, 1993

A limited number of students with a Bachelor Degree in any branch of Engineering will also be eligible for admission to this MBM programme directly on the basis of their performance in GATE, and an interview to be conducted at IIT, Kharagpur Candidates thus admitted will be eligible to receive the Institute scholarship of Rs 1800 p m They are advised to respond to the forthcoming advertisement for admissions to the M Tech programmes of the Institute

INDIAN COUNCIL OF MEDICAL RESEARCH

Nominations/applications are invited from distinguished retiring scientists engaged in research in the field of biomedicine for consideration for appointment as Emeritus Medical Scientist under the Council. Full particulars can be obtained from the office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi - 110 029. The Scientists who are going to retire upto 31st December, 1993 need only apply for the appointment as Emeritus Medical Scientist under the Council. Last date for receipt of applications is 20th May, 1993.



INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

ADMISSIONS TO M.TECH (SPONSORED), M.Sc., Ph.D., M.S., M.S. (SPONSORED) AND M.S (Entrepreneurship) PROGRAMMES 1993-94

I. POST-GRADUATE PROGRAMME

1. M.Tech – Sponsored (without institute scholarship).

M.Tech : In Aerospace Engg., Applied Mechanics (Engg. Mech, Industrial Tribology, Maintenance Engg and Management, Biomedical Engg.), Chemical Engg., Civil Engg., Computer Science & Engg., Electrical Engg., Humanities & Social Sciences (Industrial Management), Mechanical Engg., Metallurgical Engg., Physics (Solid State Technology) and Ocean Engg.

Minimum qualification and experience :

- (a) 1st Class or 60% (55% for SC/ST) marks aggregate in Bachelor's degree in Engg./Tech or M Sc for certain areas and
- (b) minimum 2 years (3 years for Industrial Management) professional experience (excluding training period) after graduation at the time of joining.

Candidates sponsored with leave and full salary by DST recognised R & D Institutions/Industries only are eligible

2. M.Sc. : Chemistry/Mathematics/Physics

Minimum qualification :

1st class or 60% (55% for SC/ST) marks aggregate or equivalent in B Sc

M.Sc. Chemistry : Chemistry main and Maths & Physics ancillaries

M.Sc. Mathematics : Maths Main

M.Sc. Physics : Physics main and Maths as one of the ancillaries

II. RESEARCH PROGRAMME

A. FULL TIME WITH SCHOLARSHIP

1. Ph.D. In Chemistry/Mathematics/Physics/Humanities & Social Sciences (Economics/German/English/History/Psychology)

Minimum qualification -

- (a) 1st class or a minimum CGPA 6.5 of Master's degree in the relevant area of Science/Humanities and Social Sciences or equivalent with Valid GATE score of 70 percentile or UGC/CSIR Fellowship tenable from the current year or
- (b) Master's degree in Engg/Tech with 1st class or CGPA 6.5 or equivalent

2. Ph.D and M.S : In Aerospace Engg. Applied Mech, Chemical Engg, Civil Engg, Computer Science & Engg, Electrical Engg, Humanities & Social Sciences (Industrial Engg & Industrial Management), Mechanical Engg, Metallurgical Engg and Ocean Engg

Opportunities also exist for research work in the following centres :

Centre for Bio-Science and Bio-Technology, Materials Science Research Centre, Regional Sophisticated Instrumentation Centre FRP Research Centre and Centre for Systems and Devices

Minimum qualification :

Ph.D. a) 1st class or minimum 6.5 CGPA in M Tech/ME

- b) For certain Depts, 1st class or minimum 6.5 CGPA in M Sc with a valid GATE score of 70 percentile or UGC/CSIR Fellowship tenable for the current year

M.S a) 1st class or minimum 6.5 CGPA of Bachelor's degree in Engg/Tech with a valid GATE score of 70 percentile or CSIR Fellowship tenable for the current year in the relevant areas

- b) For certain Depts, 1st class or minimum 6.5 CGPA of Master's degree in Sciences/Humanities & Social Sciences with a valid GATE score of 70 percentile or UGC/CSIR Fellowship tenable for the current year in the relevant areas

3. M.S. (Entrepreneurship)

Minimum qualification : As indicated above for M.S. Objective of the programme is to expose young engineers to the multi-faceted field of entrepreneurship development and to provide them with excellent facilities for developing products in high-tech areas with market potential. During the course of this programme, the candidates are encouraged to start their own industries to manufacture the products they have developed and are also given advice in getting support from financial institutions

4. M.S. – SPONSORED (without institute scholarship)

Candidates sponsored with leave and full salary by DST recognised R & D Institutions/Industries only are eligible. The minimum residential requirement for them is 18 months (Full time). Minimum qualification as indicated above for M.S. excepting that the candidate need not have GATE Score

5. SAIL Talent Research Fellowship

Candidates applying for Ph.D. in the Depts. of Metallurgical Engg and Electrical (Electronics) Engg/Computer Science & Engg are eligible for SAIL fellowship on topics of relevance to SAIL. Candidates who wish to be considered for the above mentioned fellowships may indicate their choice by a separate covering letter

B. EXTERNAL REGISTRATION FOR M.S/Ph.D PROGRAMMES (without institute scholarship)

Candidates sponsored by Institutions/Industries recognised by DST will be considered for admission. They must possess minimum academic qualification as prescribed for full time candidates in all respects

Faculty of a University/College are not eligible to apply under this scheme

Upper age limit For Ph.D - 45 years, for MS - 35 years

III. HOW TO APPLY

Candidates may apply on plain paper to the DEPUTY REGISTRAR (ACAD), IIT, MADRAS 600 036 for Application Form separately for M.Tech (Sponsored), M.Sc., M.S., M.S. (Sponsored), M.S. (Entrepreneurship) and Ph.D programmes. Each request for application form and Brochure should be accompanied by a Demand Draft for Rs. 25/- drawn in favour of IIT, Madras on a Nationalised Bank payable at Madras and 2 slips (5 cm x 10 cm) with full address of the applicant in BLOCK LETTERS

IV. LAST DATES – Request for Application Form – By post 05th April 1993

– At the Institute Counter 19th April 1993

Receipt of completed Application Form – 21st April 1993

DEPUTY REGISTRAR (ACAD)



UNIVERSITY OF DELHI

DELHI-110 007

Advt. Estab.-IV/Advt. 135/93 Dated : March 12, 1993

Applications on the prescribed forms are invited for the following posts in various Departments/Centres of the University, so as to reach the REGISTRAR, UNIVERSITY OF DELHI, DELHI-110 007 latest by April 13, 1993 :

1 ANTHROPOLOGY

Reader (1), Lecturers (3)

Special/Desirable Qualifications :

Reader Social Anthropology, specialisation in Social Anthropology with extensive field work experience in Tribal Societies with focus on Tribal Culture/Cultural Ecological Studies in Tribal Societies

Lecturer (1) Physical Anthropology Research & Publication in Physical Anthropology with evidence of work in Paleo-Anthropology

Lecturer (2) Pre-Historic Archaeology Research & Publication in Pre-Historic Archaeology with extensive field work and knowledge of material culture

Lecturer (3) Social Anthropology Specialization in Social Anthropology with extensive field work experience in Tribal Societies

2 AFRICAN STUDIES

Reader (1) (Sociology)

Special/Desirable Qualifications :

a) Doctor's degree or published work on Africa, b) Field work in Africa or visiting assignment at an African University, c) Knowledge of an African language

3 CHINESE & JAPANESE STUDIES

Professor (1) (Chinese),

Lecturer (1) (Japanese)

Special/Desirable Qualifications :

Professor a) Chinese Society and b) Comparative study of China and India
Lecturer a) Experience in teaching Japanese language through Audio Visual methods, b) Level of the Japanese Language proficiency test conducted by Japanese Foundation

4 COMMERCE Reader (1), Lecturer (1), Research Associates (2)

Special/Desirable Qualifications :

Reader Specialization in International Business
Lecturer Organisational Behaviour/Human Relations

5 ENGLISH Professor (1)

6 GERMANIC & ROMANCE STUDIES Reader (1) (Italian)

Special/Desirable Qualifications :

Specialization in Literature

7 GEOLOGY Professors (2), Research Associate (1)

Special/Desirable Qualifications :

Professor (1) Specialisation in Petrology/Economic Geology/Biostratigraphy
Professor (2) Aptitude in Geological Instrumentation

Research Associate Aptitude in Geological Instrumentation & Advanced Microscopy

8 HINDI Professor (1), Reader (1), Lecturer (1)

Special/Desirable Qualifications :

Reader With specialization in Linguistics with reference to structure and development of Hindi Language.

Lecturer Experience of teaching Hindi as a second language & experience of translation from English to Hindi and vice-versa.

9 LINGUISTICS Professor (1), Readers (2), Lecturers (2)

Special/Desirable Qualifications :

Professor : Specialization in Socio & Applied Linguistics. A sound knowledge of theoretical Linguistics.

Reader (1) In Theoretical Linguistics Specialization in Government and Binding/Generalized Phrase Structure Grammar/Lexical-functional Grammar/Montague Grammar Published evidence required

Reader (2) Generative Morphology/Generative Phonology with sub-specialization in Auto Segmental Phonology or Matrical Phonology/Socio-Linguistics Theory/Neuro-Linguistics Published evidence required For the position in Neuro-Linguistics, a D M degree in Neurology with special area of interest in Speech Pathology and Linguistic Aphasia with at least a Diploma in Linguistics

Lecturer (1) Language Teaching/Language Testing with a sound background in syntax, phonology and morphology

Lecturer (2) Historical Linguistics with Indian Grammatical Tradition

10 MODERN INDIAN LANGUAGES

Reader (1) (Gujarati), Lecturers (3)

Special/Desirable Qualifications :

Reader Comparative Literature

Lecturer (1) Telugu Language Teaching (Comparative Literature)

Lecturer (2) Tamil (Comparative Literature)

Lecturer (3) Malayalam (Comparative Literature)

11 MUSIC Readers (3), Lecturer (1)

Special/Desirable Qualifications :

Readers One post each for Vocal Hindustani Music, Vocal Karnatak Music and Instrumental Hindustani Music good performing ability with a comprehensive repertoire of traditional ragas and forms

12 PHYSICS & ASTROPHYSICS Reader (1)

13 PSYCHOLOGY Professor (1), Reader (1), Research Associate (1), (All under DSA Programme @@)

Special/Desirable Qualifications :

Professor Applied Social Psychology

Reader Cognitive Process

14 SANSKRIT Professor (1), Lecturer (1)

15 SOCIAL WORK Professor (2), (one under DSA)*, Readers (3) (one under DSA)*, Lecturer (1)

Special/Desirable Qualifications :

Professor (1) Teaching/Work experience in Philosophy of Social Work/Social Work Research/Methods of Social Work/Social Administration/Gandhian Studies/Human Resource Development

Professor (2) Experience of Teaching/Field Work in Social Policy and Social Development/Social Work Research

Readers (1&2) Experience of Teaching/Field Work in Social Work Educa-

tion/Community Organisation and Community Development/Fields of Social Work/Social Work Research and Statistics

Reader (3) Teaching/Work experience in Women's Studies/Social Services and Social Security Community Organisation

Lecturer (1) Teaching/Work experience Field Work in Human Growth and Development/Fields of Social Work

16 ZOOLOGY : Lecturers (2)

Special/Desirable Qualifications :

Specialization in any one of the following six fields

1 Developmental Biology; 2. Animal Physiology; 3 Insect Toxicology; 4 Insect Physiology; 5 Chronobiology; 6 Parasitology.

17 REFERENCE : Advt. Estab. IV/Advt. 134/92 dated October 04, 1992 :

03) Sociology, Lecturers (3) (Read 5 instead of 3, (4 permanent vacancies & one leave vacancy)

13) Campus Law Centre, Research Associates (2) (Read Department of Law instead of Campus Law Centre)

@@ Upto 4.5.1994

* Upto 31.3.1997.

SCALES OF PAY :

PROFESSOR Rs 4500-150-5700-200-7300,
READER Rs 3700-125-4950-150-5700,
LECTURER Rs 2200-75-2800-100-4000,
RESEARCH ASSOCIATE OR Rs 2200-100-2700 OR Rs 2700-100-3200 OR Rs 3200-100-3700 OR Rs 3700-125-4325 (Depending upon the recommendations of the Selection Committee)

NOTE : i) Lecturer In each subject one out of five posts (at least one) is meant for candidates belonging to SC/ST If no suitable candidate is available, the post will be filled up by any other suitable candidate, ii) Professor & Reader Other things being equal preference will be given to SC/ST candidate, iii) It will be open to the University to consider names of suitable candidates who may not have applied, iv) Number of posts is given within parenthesis against each post

All the above posts except of Research Associate carry D A, C C A, H R A etc as are admissible under the rules in force in the University from time to time

The details regarding prescribed qualifications and application forms for various posts can be had from the

Establishment Branch - IV, (Room No. 205), New Administrative Block, University of Delhi, Delhi-110007 during working hours (09.30 A.M. to 12.30 P.M. and 02.00 P.M. to 5.00 P.M.) either personally or by sending a self addressed and postage stamped envelope worth Rs. 8/- (size 13 cms x 28 cms) at the above address.

PROF. S.K. WASAN
REGISTRAR

DELHI-110007,
MARCH 12, 1993.